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ROCKS AND MINERALS

Official Journal of the Rocks and Minerals Association

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Whole No. 184

A Magazine for Mineralogists, Geologists and Collectors

NOVEMBER, 1946

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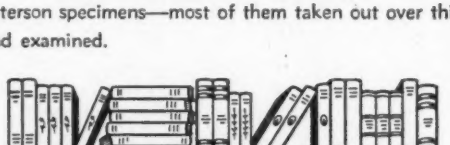
AN INVITATION

Anyone interested in minerals is cordially invited to visit my showroom and look over the thousands of specimens which I have on display. Although in my monthly lists I emphasize very fine minerals at prices commensurate with their quality, I have hundreds of good specimens at prices ranging from fifty cents to two dollars. As all collectors know, it is a great advantage to be able to see and examine mineral specimens before buying them. Do not feel however that there is any obligation to buy: if you find anything you like, so much the better; if not, I shall at all events have had the pleasure of meeting you and talking about minerals, which have been my great interest since I was a small boy. Apart from specimens from old European and historic American localities, I have also the recent finds. If you want to see the superb ADAMITE or the magnificent WULFENITE from Mexico recently placed on the market, I have a very fine suite of small to museum size specimens. Or you may be interested in fluorescence: I have a good display of fluorescent minerals, and both long and short-wave lamps. If you want to examine some of your own specimens under a magnification higher than that afforded by the ordinary hand-lens, a Spencer binocular microscope giving magnifications up to 74 diameters is available; or perhaps you may wish to determine the index of refraction of a gemstone—you can use a Herbert Smith refractometer. Numerous books on mineralogy and gemstones—both old and new —may be consulted, including a complete set of the old "MINERAL COLLECTOR"; "ROCKS AND MINERALS" from the first number to date; "THE MINERALOGIST" from Volume 2 to date; a file of the "AMERICAN MINERALOGIST", and so on. Good Franklin minerals, including many of the rare species, and old time Paterson specimens—most of them taken out over thirty years ago—may be seen and examined.



I am regularly open on Tuesdays, Thursdays and Saturdays, from 10 a.m. to 3 p.m. (or later by appointment). On other days I am usually here, but give me a call beforehand to make sure. You can reach my office by taking the 7th Avenue Subway (Express) to Wall Street, then walk two and a half blocks towards the East River. Come down and make yourself at home, you will receive a friendly welcome.

HUGH A. FORD

Office and Showroom: 110 WALL STREET NEW YORK 5, N. Y.

Telephone: BOwling Green 9-7191

ROCKS and MINERALS
PUBLISHED MONTHLY

Edited and Published by
PETER ZODAC

November
1946

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ROCKS and MINERALS PEEKSKILL, N. Y., U. S. A.

The official Journal of the Rocks and Minerals Association

CHIPS FROM THE QUARRY

GIVE YOUR SUPPORT TO THE NATIONAL FEDERATION OF MINERAL CLUBS

A movement is now afoot to perfect some kind of a National Federation of mineral clubs during the coming year. We believe that this is a good thing and it will offer great opportunities to forward the work and the welfare of all such organizations, whether they be mineral minded, geological, lapidary or gemmological.

There are now a number of Regional Federations operating in various parts of the country. Their annual meetings are well attended and there is a great show of interest. All who attend them say they never met with more enthusiastic groups, where the business at hand is conducted on a higher or more ethical plane, than at these meetings. A National Organization would supplement the work of the original Federations.

Mr. Richard N. Pearl of Colorado Springs, Colorado, and Mr. Ben Hur Wilson, of Joliet, Illinois, cooperating with an Advisory Committee, are preparing to send out a questionnaire this winter to all Clubs in the Country whose addresses may be ascertained, to obtain a cross section opinion, as to the many individual details which are to be worked out in perfecting such a great undertaking.

Personally, we believe this to be a good thing, as it will augment the movement, and is bound to help every one concerned, including the local clubs, the magazines, the advertisers and the dealers. Everyone knows there should be at least ten clubs operating to where there are only one today, and this looks like a good way to help bring this about.

MINERAL EXHIBIT AND SALE IN NEW YORK

As advertised in *Rocks and Minerals*, Mr. John S. Albanese, of Newark, N. J., held his first exhibit and sale of minerals in the Shelton Hotel, New York City, on Friday and Saturday, October 11th and 12th, 1946.

This was an exhibit for mineralogists and collectors who wanted to see minerals, and a sale for those who wanted to add better or different specimens to their collections. The field was well covered for there were items that every one knew, as well as a few from the original Lord Calvert collection which was gotten together nearly 300 years ago. Several tables were filled with Franklin. N. J., minerals of a great variety, both fluorescent and otherwise, and among these was a unique specimen in which there were more than 200 perfect crystals of mooreite, (alpha), implanted on zincite and associated with fluoborite and pyrochroite. This piece probably was not appreciated by the majority of the collectors who saw it. There was plenty of variety both as to species and prices so that everyone could satisfy the requirements of his budget or cabinet.

Many of the specimens came from such well-known quarries as those of Paterson, Great Notch and Prospect Park, in New Jersey, and these went over well with the visitors. Choice descloizite from Mexico was very attractive: unusual bakerite and priceite from California were unfamiliar to many collectors. The hard-to-get adamite from Mapimi, Mexico, was one of the sensations of the show because of its beautiful crystallization and because of its brilliant fluorescence. This zinc mineral, by the way, is found only at rare intervals of time and in few localities, and many collectors had never heard of it before, nor could they find its listing or description in some of the books on mineralogy.

A few sidelights on the exhibit may be of interest. One collector of over fifty years duration said that he had so many minerals that there wasn't much that he wanted any more. Another elderly genlemen asked if there was any

(Continued on page 755)

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MORONI'S POSTPILE

BY RONALD L. IVES

ABSTRACT

Moroni's Postpile, an eroded rhyolite neck located in the Cedar Mountains, Utah, is here described, its geologic environment outlined, and its probable history discussed.

LOCATION AND ACCESSIBILITY

Moroni's Postpile, one of the many volcanic remnants to be found in the ancient Bonneville Basin, is located on the southwest face of the Cedar Mountains, Tooele County, Utah. Its geographic position, as indicated by the best available surveys is Lat. 40° 16' N.; Long. 113°01' W.; Alt. 5300 MSL. Location is shown in Fig. 1, an outline map showing also the best access roads.

The Postpile is reached from Salt Lake city via either Grantsville (Skull Valley Road) or St. John (Johnson Pass) to Orr's Ranch, at the south end of Skull Valley. Local inquiry as to road conditions and turnings is desirable at either St. John or Grantsville.

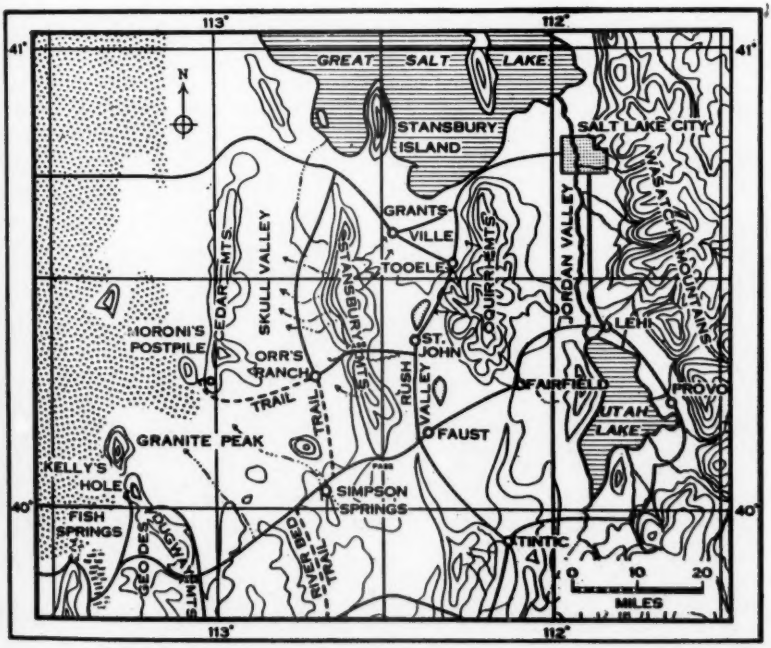


Fig. 1 Outline map of a part of the Utah Desert Area, showing location of principal points of geologic interest, and access roads available to the general public. Contour interval is approximately 1,000 feet, lowest contour being 5,000 feet.

From Orr's Ranch, the White Rocks road is followed over White Rocks Pass to the far side of the dunes on the west side of the Cedar Mountains. This road is in bad shape. Just west of the dunes, the road forks and becomes worse. Follow the north fork along the pediment of the Cedar Mountains for about four miles, until it starts to climb to a low pass in the northwest. A short distance further on, the road crosses a dry wash, from which the Postpile is plainly visible.

Go up this wash (northeast) to the Postpile, taking due precautions regarding high centers, loose gravel, and rattlesnakes. From the White Rocks Dunes to the postpile, the road is in a very poor condition. A light truck or a jeep is preferable to a passenger car for this trip.

Between Orr's Ranch and the postpile are several exposures of black obsidian, and of volcanic breccia containing large boulders, as well as masses of the calcareous tufa common to areas once covered by the waters of Lake Bonneville Some rather showy agate boulders have been found in this area, as well as a few geodes. Neither are plentiful here.

GENERAL GEOLOGIC ENVIRONMENT

Moroni's Postpile occurs in an area of older paleozoic limestones, partially metamorphosed, and repeatedly faulted, folded, and intruded. A few fossils found in the area suggest that the limestones are of late Cambrian or early Ordovician age, although more extensive fossil collections may produce a more conclusive dating.

To the southeast, beyond White Rocks Pass, is a mass of interbedded lavas and volcanic breccias. West of the Postpile is Wig. Mtn., a limestone fault block diluted with rhyolite and basalt, and covered in many places by thick tuff deposits, of later Pleistocene age.

Filling ancient canyons in the Cedar Mountains is a series of Tertiary to Recent flood deposits; interbedded, below the Bonneville shoreline (about 5250 MSL.), with lake marls and sands. Many of these ancient valleys are now being resurrected.

DESCRIPTION

As seen from the dry wash approaching it from the southwest, Moroni's Postpile appears as a low black mound with an inclined group of columns at the south side (Fig. 2). Many visitors regard these columns as the entire volcanic neck, and propound interesting theories as to the magnitude of recent tilting of the area.

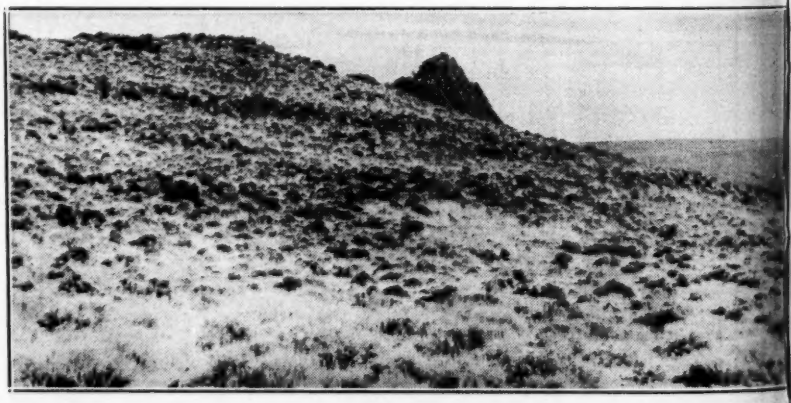


Fig. 2. Moroni's Postpile, seen from the southwest. The columns at the right are only a small part of the ancient volcanic neck. Note the Bonneville shoreline running horizontally across the center of this picture.

The diameter of the rhyolite mass is very roughly 500 feet at the Bonneville level, and the height of the summit above this level is approximately 90 feet. The summit is relatively flat, and is largely swept clear of debris, probably by wave action during a short-lived very high stage of Lake Bonneville.

Around the postpile on the west and north is a mass of mixed sediments, composed of a rough limestone basement, with the holes and irregularites filled by flood deposits and marls.

On the south side, the rhyolite is exposed by erosion for a vertical distance of nearly 250 feet, forming a steep declivity. At the foot of this is a pile of fallen five and six sided columns, covering perhaps an acre. Although these fallen columns are below the Bonneville shoreline, they show no signs of wave erosion, indicating that their fall occurred since Bonneville time, or perhaps within the last 20,000 years (Fig. 3).

GEOLOGIC HISTORY

Although by no means as large or spectacular as the volcanic necks now known as the Devil's Tower, in Wyoming; or Miter Peak, in Trans-Pecos, Texas; Moroni's Postpile has a similar formation, and from its geologic relations, similar history can be inferred for it.

The initial intrusion of the rhyolite forming the neck occurred after the last major tilting of the region, as the center line of the neck is substantially vertical. From local geologic history, the last major tilting can be placed as not later than mid-Miocene.

Because the Bonneville shoreline is cut into the side of the Postpile, its minimum age can be set as pre-Bonneville.

Fig. 3 Fallen columns at the south face of the postpile. None of these are wave-worn, indicating that the fall occurred since the recession of Lake Bonneville.

Study of the vesicularity of the columns, exposed for a vertical extent of about 250 feet on the south side of the Postpile, shows that the size range is the same at top and bottom. This suggests that the present postpile materials congealed at some depth below the surface.

Small bodies of rhyolite are found nearby on the Cedar Mountains at elevations approximating 1,000 feet above the present summit of the postpile. From their locations and positions, these could well be remnants of sills related to the postpile. No other source of rhyolite in the near vicinity has been found.

From the above field data, it can be assumed that the former vertical extent of the postpile exceeded 1,000 feet above its present height. Consideration of past and present erosion rates in this area suggests that erosion probably commenced in late Miocene or early Pliocene time.

A diagram showing the inferred former shape of the Postpile comprises Fig. 4. It is entirely possible that there were a number of small sills, of small lateral extent, between the present and former summits of the ancient volcanic neck.

SUMMARY

Moroni's Postpile is a small, typically formed volcanic neck, of probable later Miocene age, which has been eroded extensively. Geologic and topographic relationships are quite interesting. A visit to the postpile seems worth while for regular residents of the area, who are equiped with rugged vehicles, but due to the large number of other interesting features in the state, one day of a five day stay in Utah should not be spent in reaching the postpile.

As with most other geologic features of the Utah desert area, more study of the area containing the Postpile will produce more information of interest to geologists, mineralogists, and other students of the natural sciences.

Visitors to Moroni's Postpile should not stray southwest of the access road, as this area is a military reservation closed to the general public.

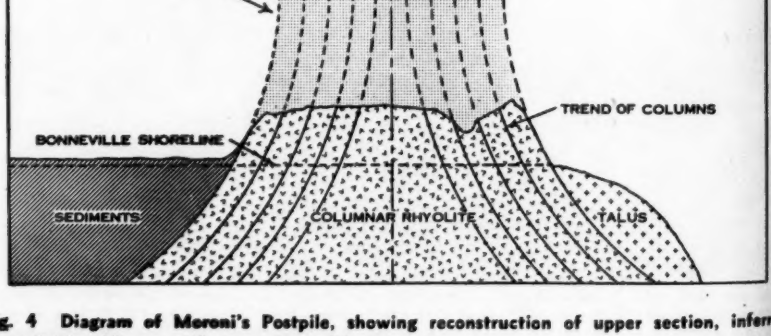


Fig. 4 Diagram of Moroni's Postpile, showing reconstruction of upper section, inferred from field evidence, and now removed by erosion.

MY MINERALOGICAL ACTIVITIES

(SUMMER OF 1946)

BY E. LAWRENCE SAMPTER
49 W. 45th Street, New York 19, N. Y.

During the past summer, the mineralogical activities of my wife and myself increased considerably, over previous years. I will therefore be more statistical than descriptive. As we covered many of the same quarries as in past years at our old stamping grounds—Oxford County, Maine, I will only mention a few highlights of our Summer's experiences.

We visited 16 different quarries, some of them several times. Called on 8 different dealers and were active with 6 different enthusiastic, well known mineralogists, as well as the members of the Maine Mineralogical Club, with whom we climbed Mt. Newry. Also acquired good crystals of about 25 different minerals, not including many of the different Paterson Zeolites and Franklin and Tilly Foster specialties.

With Mr. T. Orchard Lisle, we had a very productive day in Paterson, N. J., just after a blast, and also in Franklin, N. J.

With films available again, I also took many pictures for my photographic album, of all of the places we visited and the people we were with, as permanent records of our many trips.

We were at the "Rock of Ages" granite quarry, now being actively worked, in Barre, Vt., and were guided through the complete plant of the Vermont Copper Co. in South Strafford, Vt., which was very interesting. Millions of the peoples dollars were spent there during the war to erect the most modern floatation plant, to produce scarce copper, out of low grade ore.

Forrest L. Parmenter Visited

Called on Mr. Forrest L. Parmenter at his home in Charlestown, N. H. Unfortunately he was out, but his mother kindly showed us his cutting and polishing equipment and his stock of the rare 18 sided beryl crystals from the McGuinnis and Palermo mines.

Visited Tilly Foster, N. Y., and dug around the old dumps of this abandoned iron mine. Then went to Mr. John N. Trainer's charming home in nearby Brewster and saw his fine Tilly Foster minerals and his collection of green garnets.

At Lower Manhattan Island (New York City)

After many Saturday afternoon gatherings at Hugh A. Ford's mineral shop on Wall Street in New York City, we pioneered at the nearby Battery Tunnel dumps. Also were in quite a few of the new holes now being dug for foundations of the many new buildings being erected on the island.

Collecting in Maine

In Maine we were at the Bumpus, Slab City, Durgian Hill and the North Chatham feldspar quarries with Mr. Gutman and found no changes at any of them. Bumpus is still idle and full of water.

Went to Mrs. Bennett's quarry near Buckfield, Maine, three times, (twice while it was being worked) and we found nice apatite, quartz, lepidolite, etc. The third time that we were there, we were astounded to find the quarry idle and almost as clean as if it had been swept with a broom. We were told that the quality of the feldspar was running too low, due to excessive quartz and the men and machinery were working a new locality near the old Bessie mine, north of Mt. Mica. This will be a new quarry in prospect for a profitable visit next Summer.

Saw Howard Irish at his home in Hartford, Maine, and acquired several fine local crystals from him. The three generations of his family are a pleasure to be with and we always look forward to this annual call of ours.

Our best day was spent climbing Mt. Newry, or Little Plumbago Mountain, between Hanover and S. Andover, Maine, with fellow members of the Maine Mineralogical Club, on their monthly field trip. Had the pleasure of getting acquainted with many of their

well known members, including Herb Haven, the "Candy King" of Portland. Also Charley Marble, Miss Beach, Mr. True, Mr. Leonard and Prof. and Mrs. Rogee of Colby, with their son, whom Prof. Rogee carried all the way up and down Newry, on his back.

The weather was perfect that July day and very active and intensive digging was done and fine specimens of green, pink, black and watermelon tourmalines were uncovered, as well as tryphilite, polucite, caesium beryl and one group of rose quartz crystals. I acquired a small, but clear green, tourmaline with a perfect and unusual termination and a bag of other tourmaline crystals in the matrix. It was amusing to see to what extent the Maine club members were interested in nature. Many of them were enthusiastic collectors of unusual mosses, butterflies, moths, plants and beetles, as well as minerals.

Newry will be a fine source for specimens for many years to come and is especially so now, as it is being worked again for feldspar by the Pechnic brothers, of S. Paris, Maine. To work Newry, though, a collector will save much time and labor, by being instructed first in what dumps to work. The best of each different mineral and different colored tourmalines all have their specific locations and it is much wasted energy to look in other places, if one is not told just where to search. I concentrated my efforts on one hole, which produced nothing but green tourmalines. My wife worked her own site on the other side of the top quarry, which produced chiefly pink tourmalines.

Climbed Newry again with Boston friends, the following Sunday. While we had to watch our mileage last year, due to gas rationing, this year we had to watch our steps, as we found ourselves a year older and so to us Newry gets higher each year.

Enjoyed a day up Noyes Mountain displaying my limited knowledge of mineralogy by showing a group of 11 young camp girls what mica, quartz, tourmaline and apatite were and how to identify the simple minerals. Eleven enthusiastic new mineralogists were born that day.

Bought the large, perfect black tourmaline crystal from Matti Waisanen, which I have admired in his house for several years. It is about I foot long, by 5 inches in diameter and unusually hard and solid for a Maine black tourmaline and is a complete unbroken crystal, with perfect sides and one perfect termination. It comes from the quarry on his farm, just about a half mile east of Noyes, which used to be worked for mica.

From dealer, I also bought some amethystine quartz, with a supposedly unknown square black crystal on it. It was identified by Dr. F. H. Pough, as a piece of licorice; it had previously fooled several real mineralogists.

Again studied the extensive Paris Hill, Maine, library collection of local minerals, including some tourmalines found by the Hamlins, as early as the year 1820, at Mt. Mica.

Found a 60 year old granite quarry, being reworked in Fryeburg, Me., by a man from Brooklyn, N. Y., with workers from the Red Stone quarry, which is still idle. No crystals have been exposed yet, but they expect to blast soon in a better zone for minerals and it will be a good place to visit next Summer. The owner is very friendly and glad to help collectors all he can.

Our Pet Quarry

Our new pet quarry was quite a find and we visited it three times. Would have gone more often, but were prevented by the heavy daily rains in August. This kept the pit full of water, which came in faster than the pumps could get it out, and also made the road up the hill too slippery for our car to maneuver. The quarry is on Roy Wardwell's farm at Hunt's Corner, Albany, Oxford County, Maine. It is a one man activity, being worked for feldspar by a Mr. Joe Pechnic, whose sons are working Mt. Newry. This quarry produces the finest grade of feldspars, beryl crystals, rose quartz and many large black tourmalines,

with fine shiny terminations; also much, now unsalable, mica and most of the other pegmatite minerals. Fine beryl crystals from one-half to about three inches in diameter are very plentiful and fun to dig out of the dumps and break out of the freshly blasted rocks. They are not clear, but of good color and fine crystal shapes, with smooth faces. The rose quartz is deeper in color than that from Bumpus.

Mr. Pechnic lives in hermit style at the quarry all year round, in a neat, cabin and does everything himself. He blasts, piles up the fine feldspars, beryl, mica and rose quartz and dumps out the worthless rock. Runs a derrick by using an automobile engine, still housed in the old car's body. About once a week a truck comes up and carts away the feldspar and brings in to Mr. Pechnic, whatever he had ordered from the town the trip before. This one man operation goes on day after day, Winter and Summer. Except for collectors and dealers, who know of the place, Mr. Pechnic's money crop is feldspar, for which I estimate he gets only about $4.00 a ton net, now, but he is very happy and seems to thrive well on his solitary miner's life.

Schortmann's Minerals Visited

Called on Schortmann's, Minerals, as we do each summer, in their most attractive and well arranged shop in Easthampton, Mass. It is always a tempting treat for collectors to visit this well stocked mineral headquarters.

Robert F. Bickford Visited

Saw Mr. Robert Bickford in Norway, Me., again, where he had a nice new lot of emerald crystals from Colombia, one of which I bought.

S. I. Perham Visited

Visited our friend Mr. Perham at West Paris, Me., several times. He has a fine new shop across the road from his old one and an annex, with a complete and modern cutting, polishing and jewelry making plant, employing four men and several girls there. Again there were always from 5 to 10 cars parked in front of his place. Like in the prewar days. Mr. Perham is very active and most cooperative in giving mineral hunters accurate information as to localities of interesting quarries and has written a very extensive article about Maine minerals and where to find them in the Maine "Arrow Guide" vol. 2, published in Portland, which sells for $1. He is a great booster for Maine minerals and does a great deal to instruct and assist collectors in locating them. Perham also does considerable lecturing on the subject at many of the numerous children's camps nearby and so helps to educate the younger generation in mineralogy.

Ike Skillin Visited

Spent several enjoyable hours at Ike Skillin's in Freeport, Me., where we met his son and most attractive granddaughter, Miss Patricia Curtis, who is a good mineralogist, lapidary and newspaper reporter. Skillin has one of the very large, magnificent Swiss group of quartz crystals, with over 2800 terminations on display, which were imported by Herb Haven. The Sunday *Portland Telegram and Press Herald* devoted a page in their July 7th issue to Skillin, True, Leonard and their collections of minerals and showed their pictures, as well as a view of this large quartz group in Ike's shop. Bought several nice specimens from him and also his large old spool cabinet which is ideal to hold some of my collection here in New York. It is always worth a trip to Maine to spend some time with Ike Skillin and he is highly recommended to future visitors down East."

Charles Marble Visited

Met Charley Marble, the well known mineralogist and lapidary, of Buckfield, Me. Saw his large collection, cutting and polishing room and were at Bennett's and Mt. Newry with him. He is an enthusiastic naturalist and fine lapidary and lives chiefly for his art. Also has some cut gem tourmalines, caesium beryl and rose quartz crystals for sale and many other interesting specimens. It was a pleasure and rare treat to have been able to be with Mr. Marble this summer.

Other Collectors Met in Maine

At Newry we met an attractive couple, just out of the army, from Oklahoma. They slept in their car at night and had

a very ingenious trailer, which contained an ice box, oil stove and the food. Their constant companion from home was a black cat and except for 2 nights, they had always slept in the car for over six weeks, during which time they were touring the country, looking for rocks to take back home with them for cutting and polishing purposes.

We were pleased to have met twice some collectors from New Jersey who were following some of the leads in my article in the December, 1945, *Rocks and Minerals*. Again, I shall be glad to give any interested visitors to Oxford County, Maine, detailed locations of quarries, for their 1947 mineralogical vacations.

There are still crystals to be found in old dumps of Oxford County quarries and new quarries are being opened and worked again, for feldspar, each year. Fine collectors items are to be acquired in Maine, by digging in old dumps, blasting for fresh rock and as Mr. Lee calls it—by the "Silver Pick" method from miner's boxes and local dealers.

Oolitic Limestone From Milton, Penn.

Limestone has been quarried in and around Milton, Penn., for a number of years. The limestone is the Tonoloway and is found on the north slope of the Milton sub-axis[1]. The rock is dark gray, black, chocolate-colored and varies from shaly to hard and massive. It has been quarried for crushed stone and for the manufacture of lime.

An interesting type is a tough very dark gray oolitic limestone which occurs as thin beds (less than a foot in thickness) in the Tonoloway series. The oolites (also dark gray) are tiny pea-like masses which may be found scattered thinly or segregated in tiny groups. Oolites are round grains like the roe of a fish.

Milton is a village of about 9,000 in northern Northumberland County, of eastern Pennsylvania.

1 Limestones of Pennsylvania, by Benjamin LeRoy Miller, Penn. Geol. Survey. Harrisburg, Penn. 1934, p.607.

Maze, Japan's Chief Zeolite Locality

Maze, a little village in Echigo Province of western Honshu Island, is Japan's chief zeolite locality. The zeolites are found in basalt quarries. The most noted zeolites found at Maze are analcites, apophyllites, and natrolites.

Among the oustanding minerals found in the quarries are:

Analcite: Colorless transparent crystals, associated with natrolite and apophyllite and lining cavities in the basalt.

Apophyllite: Very fine crystals, some are transparent and colorless or white while others are translucent and greenish. Associated chiefly with analcite and natrolite.

Calcite: Nice crystals, white to yellowish, associated chiefly with chalcopyrite and sphalerite.

Chalcopyrite: Small brass-yellow crystals.

Galena: Small masses with chalcopyrite, and sphalerite.

Heulandite: Small colorless crystals.

Natrolite: Small, white, radiating-fibrous masses lining cavities in basalt.

Sphalerite: Good crystals, yellowish-brown in color and often transparent, occur associated with chalcopyrite, and galena.

Greenlandite from Greenland

Two minerals, precious garnet and columbite, that had been found in Greenland, -were both called greenlandite over a hundred years ago. The columbite, which occurred as brilliant iron-black crystals in the cryolite deposit at Ivigtut, may have been mistaken for a new species and the name greenlandite attached to it. The garnet, a deep blood-red almandite whose locality cannot be ascertained but which was highly prized by the gem cutters, may have been called greenlandite by the cutters to distinguish it from European, and Asiatic gem stones.

With the passing of the years the name greenlandite has disappeared and so too have the garnets—the columbites are seen now and then in old collections.

JURASSIC DEPOSITS OF SOLNHOFEN, BAVARIA

BY MICHAEL DUBIAGA
2136 West 10th Street, Cleveland 13, Ohio

One of the most famous geological deposits in Europe is situated south of Nuremberg, in the American occupation zone of Germany. It is a local lenticular limestone deposit near Solnhofen in Bavaria. From this locality have come many of the finest fossil specimens of late Jurassic life and they are to be found in museums the world over, prized for their perfect preservation. The life recorded in this shallow, local formation ranges from crinoids, fish and other marine forms to terrestial and flying forms such as reptiles, insects, pterodactyls, the earliest bird Archeoperyx and even a small dinosaur.

While serving with the occupation forces during the fall months of 1945, it was my good fortune to be stationed within forty miles of this locality. It was possible for me to visit the deposits on occasions and to talk to the collectors and quarry operators, and to make a personal collection of the fauna.

Quarries working this deposit are located about the towns of Solnhofen and Eichstadt. Solnhofen is five miles east of Pappenheim on Route 2, the Nuremberg-Augsburg highway, and the quarries are actually in the villages of Langenaltheim, Haardt and Maxberg, the high ground above Solnhofen which itself is in the valley of the Altmuhl River belows the rich strata.

Eichstadt is reached by going twelve miles west of Greding, on the Nurnberg-Munich autobahn, or by winding along the river road from Solnhofen. The quarries here are in the villages of Wintershof and Blumenberg just outside of Eichstadt.

The compact, fine-grained limestone quarried here was used originally in lithography, but this process was made obsolete by a later discovery. Now the output of the quarries is directed toward roofing slabs (there will be quite a demand for some years before all bombed dwellings can be reroofed), wall tiles, ornamental marble and novelties.

The "plattenkalk," as the Germans call it, is a lenticular formation 75 feet thick, formed in a thirty-mile wide depression in the Franconian dolomite. The bedding varies from three to twelve inches in thickness, and further cleavage planes within a slab range from one-sixteenth inch to two inches. The flat, even bedding is rather remarkable. One layer pointed out to me by a quarry operator as typical was five centimeters at both ends of the quarry, 300 feet apart, and the same thickness throughout its length.

Roofing slabs in standard patterns are made from 5/8-inch thick layers, wall tiles are 1/2-inch thick, and table tops taking a high polish in a varied, striped pattern come from one-inch thick layers. Quarrying operations are done by hand. A two-man team working on a level platform in the quarry digs up the slabs with bars and shovels. Other men select the desirable slabs and throw the rejects onto rail handcars for a haul to the spoil pile. The selected slabs are trimmed to approximate size by hand pliers and then transported to the workshops where they are cut down and polished on a battery of machines.

The plattenkalk layers begin just below soil level in the upland farms, and some of the farmers have decided that they can earn more money digging the rock than tilling the soil above it. Several small quarries have been started by man-and-wife and father-and-son combinations. Some of the finest specimens are to be found in these upper-most layers representing very latest Jurassic time.

As often occurs in fossil hunting, pockets are sometimes struck where many specimens of one creature were deposited in a small area. Thus, some of the small quarries had a predominance of lobster-like crustaceans, or dragonflies, or fish, along with a sprinkling of

other Jurassic forms. By visiting all the quarries in the course of time, I was able to secure a representative collection of the entire fauna. The larger quarries which cut through the entire seventy-five foot deposit and cover several acres of area have a complete faunal coverage within themselves.

Though a host of specimens have been unearthed in the 100-year operation of these quarries, the formation can hardly be considered very fossiliferous. Usually only a specimen or two is found in a quarry in the course of a day's operation where hundreds of slabs are handled. The output of specimens at present is also being kept down by the manpower shortage which limits the crews to from three to ten men in place of peacetime forces ranging to seventy men per quarry.

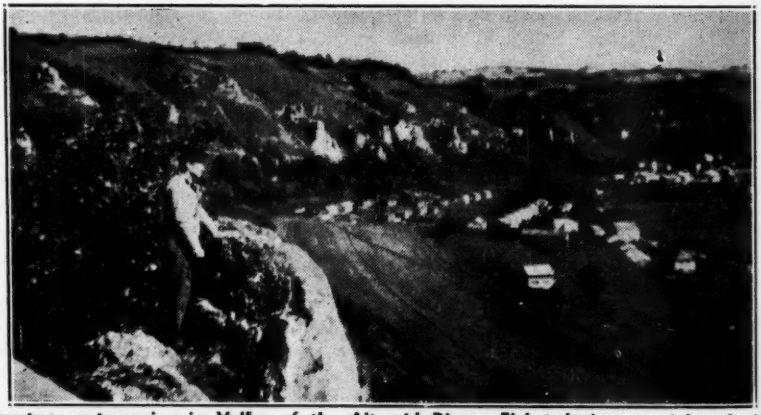
Every pile of spoil will yield some of the commoner forms such as the small free-swimming crinoid Saccocoma, coprolites and worm trails. But even the more common fish, the tiny Leptolepis, occur once in every couple of hundred slabs and are usually found by the workmen who handle them. Collecting thus became vicarious for me, having the workmen set aside such specimens as they found in their work.

After my first visit to each of the quarries I had complete co-operation from the workers and quarry operators who saved every specimen they uncovered. Although they as a group have been ever watchful for any rare specimens ever since the original discovery of the primitive birds Archeopteryx and Archeornis in the 1860's, interest had languished during the war because the German professors were too occupied to make their usual summer trips for specimens.

Despite the fact that interest was at a low ebb, some of the workmen had garnered modest collections and three quarry owners had large collections which were made over a period of twenty years. In addition, two Eichstadt residents were engaged in the work of cleaning and preparing the fossil slabs as an extra source of income.

In the seminary at Eichstadt is located a large collection of the local fauna now under the care of a Professor Meyer. This collection dates back to the beginning of quarrying operations about a hundred years ago, and includes many rare species. I regret that I was unable to see it because the professor was away the one time I called.

Briefly, the geological history of the deposit is this. In late Jurassic time the continent of Europe lay low after the erosion of the Paleozoic highlands, an archipelago such as the East Indies are today. Fringing coral reefs stretched out among the islands. In the Solnhofen area



Limestone outcropping in Valley of the Altmuhl River. Eichstadt just to right of view. Wintershof quarries on hill where spoil piles are visible. The author is standing in left foreground.

a shallow lagoon existed, submerged at high tide and a mud flat at low tide The sea was calm and hosts of denitrifying bacteria precipitated a steadily settling calcereous ooze.

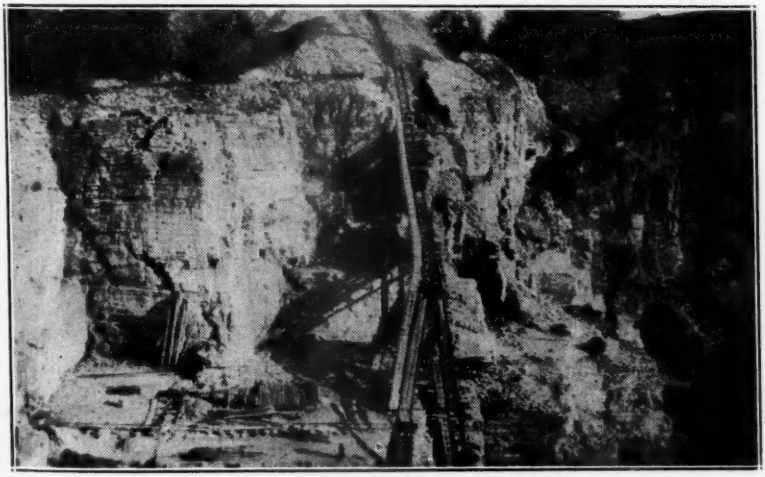
Lobster-like crustaceans and king crabs grovelled in the muddy bottom, and fish, squid, and other pelagic forms swam into the lagoon when it was deep. Insects, pterodactyls and primitive birds flew over it in quest of their prey. During periods of low tide terrestial creatures ventured out onto the mud flats, often to be entrapped in the slime. Thus it is that marine, flying, and land forms are found throughout the deposit.

As these creatures perished in the lagoon they were quickly covered with calcareous mud and sealed against deterioration, accounting for the beautiful state of preservation in which they are found. Soft-bodied forms such as the jellyfish and squid occur with the most delicate parts preserved. Also remarkable are some of the fish which are completely encased in stone, flesh and all, in their original body thickness, and not compressed or distorted in any way.

The finest specimen I secured during my visits was a fairly complete Rhamphorhynchus, a tailed flying reptile. His wing-spread was about two feet and he possessed a spiked tail a foot long which served as a rudder in his gliding flight. It is believed that he was incapable of initiating flight and merely glided between elevated points. However, even this represented quite an advance for the vertebrates in their evolution toward flight.

A small pterodactylus, measuring ten inches in wing-spread, is also in the collection. In this genus the wing membrane developed along with the elongation of the fifth digit of the forefeet into a wingbone. This digit lengthened to three inches and accounts for two-thirds of the wing expanse. The other four digits, little over a quarter inch in length, formed a claw on the "leading edge" of the wing and served as an aid in clinging to rocks.

Besides these two rare specimens I was able to secure a wide variety of fish, crustaceans, insects, a terrestial reptile and many marine invertebrates. This experience of collecting in Germany was the most gratifying of my stay in the Army. I found that keeping an eye out for new geological formations while on foreign assignments helped considerably to relieve the inevitable periods of boredom in military life. Pursuing this active outdoor hobby of geology meant a great deal to me at such times.



One of the deepest Solnhofen quarries, at Haardt

MINERALS OF THE FREDERICKTOWN, MISSOURI, MINING DISTRICT

BY ALBERT L. KIDWELL

Geologist, Missouri Geological Survey and Water Resources

One of the most interesting mineral localities in southeastern Missouri is the Fredericktown area. Several of the minerals which occur here are unique for ore deposits of the Mississippi Valley type.

HISTORY

Lead mining operations were started in this area about 1720 at old Mine La Motte, which is located four miles north of Fredericktown. The deposit was discovered by an expedition led by Frenchman Renault and is considered to be the oldest mine in Missouri. This and other mineral deposits in southeastern Missouri proved disappointing to these early explorers, who were searching for the precious metals. Desultory mining was carried on under both French and Spanish control, but the total production was small. Since about 1800 mining has been fairly continuous up to the present time.

LOCATION

Fredericktown is the county seat of Madison County and is located about ninety miles south of St. Louis. The area can be reached by U. S. highway No. 61 or Missouri Highway No. 70 which intersect at Fredericktown. The base for the accompanying plate was taken from the U. S. Geological Survey topographic map of the Fredericktown quadrangle.

PRODUCTION

The total value of the production of lead, copper, cobalt and nickel from the Fredericktown district from 1720 until 1946 is approximately $40,000,000. All but about $2,500,000 of this represents lead production.

Four companies are at present operating mines in the area. These are the Mine La Motte Corp., the St. Louis Smelting and Refining Company, Park City Consolidated Mines Company, and the Fredericktown Lead Company. All of these companies produce lead concentrates. In addition, the St. Louis Smelting and Refining Company makes a copper concentrate which is the only copper produced in Missouri at the present time. This company also separated a nickel-cobalt concentrate during part of 1944 and 1945.

COLLECTING LOCALITIES

The location of the mines and prospect shafts is shown on the accompanying plate. The best collecting spots are the dumps of the operating mines and the old offset workings at Mine La Motte. The latter is an open cut along the railroad about one-fourth mile east of Mine La Motte Village. Permission must be obtained from the main office of the Mine La Motte Corporation before collecting at this locality. Permission to collect on the dumps of the other operating mines must also be sought at the respective mine offices.

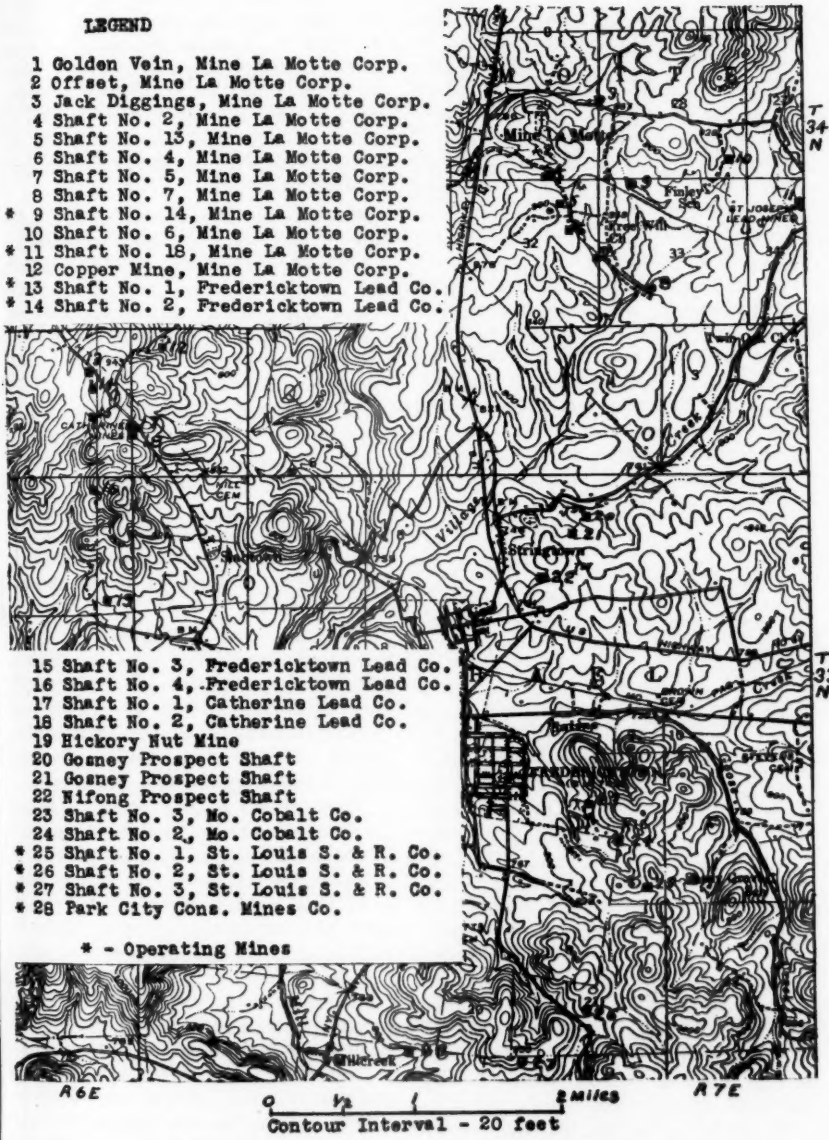
GEOLOGY

The Fredericktown mining district is about 30 miles south of the main southeastern Missouri lead belt. The mineral assemblage and geological conditions are somewhat different from those prevailing around Flat River and Bonneterre in the main lead belt.

The ore deposits occurs as lenticular masses in the lower part of the Cambrian Bonneterre dolomite where this formation overlaps the Cambrian Lamotte sandstone onto the pre-Cambrian granite and rhyolite porphyry. Most of the ore bodies have been found near buried or partially buried pre-Cambrian hills. Some faulting has taken place in the northern part of the district, but most of this is believed to be post-mineralization.

MINERALOGY

Galena is the most abundant and wide-spread ore mineral. It occurs in the form of disseminated grains in the dolomite, crystals lining vugs, and vein fillings. The crystals consist of cubes which are usually modified by octahed-


LEGEND
1 Golden Vein, Mine La Motte Corp.
2 Offset, Mine La Motte Corp.
3 Jack Diggings, Mine La Motte Corp.
4 Shaft No. 2, Mine La Motte Corp.
5 Shaft No. 13, Mine La Motte Corp.
6 Shaft No. 4, Mine La Motte Corp.
7 Shaft No. 5, Mine La Motte Corp.
8 Shaft No. 7, Mine La Motte Corp.
* 9 Shaft No. 14, Mine La Motte Corp.
10 Shaft No. 6, Mine La Motte Corp.
* 11 Shaft No. 18, Mine La Motte Corp.
12 Copper Mine, Mine La Motte Corp.
* 13 Shaft No. 1, Fredericktown Lead Co.
* 14 Shaft No. 2, Fredericktown Lead Co.
15 Shaft No. 3, Fredericktown Lead Co.
16 Shaft No. 4, Fredericktown Lead Co.
17 Shaft No. 1, Catherine Lead Co.
18 Shaft No. 2, Catherine Lead Co.
19 Hickory Nut Mine
20 Gosney Prospect Shaft
21 Gosney Prospect Shaft
22 Wifong Prospect Shaft
23 Shaft No. 3, Mo. Cobalt Co.
24 Shaft No. 2, Mo. Cobalt Co.
* 25 Shaft No. 1, St. Louis S. & R. Co.
* 26 Shaft No. 2, St. Louis S. & R. Co.
* 27 Shaft No. 3, St. Louis S. & R. Co.
* 28 Park City Cons. Mines Co.
* - Operating Mines
T 34 N
T 33 N
R 6 E
R 7 E
0 1/2 1 2 Miles
Contour Interval - 20 feet

Mines and Prospects in the Fredericktown Area

ral faces and range in size from less than an inch to six inches cross. Crystals larger than an inch in diameter are rare. One specimen observed by the writer at the Park City Mine Office consisted of several galena cubes grown one on top of the other and each rotated 45° from the preceding one. Good crystals occur in all of the mines, but they are most abundant in the vicinity of Mine La Motte. Disseminated galena and occasional crystals may be found on any of the Mine dumps.

Marcasite is abundant as small crystals lining cavities, as small disseminated grains, and as massive lenses replacing entire dolomite beds. It is usually associated with chalcopyrite and siegenite where the latter two minerals occur. Marcasite is most abundant in the mine of the St. Louis Smelting and Refining Company, southeast of Fredericktown.

Pyrite is a minor mineral in the deposits and is usually found in small cubes on other minerals in vugs.

Chalcopyrite is distributed throughout the district but is known to occur in commercial quantity only at the St. Louis Smelting and Refining Company mine. It is present in small disseminated grains and with marcasite and siegenite in massive lenticular bodies. The only crystals found are of microscopic size.

Linnaeite var. *Siegenite* is a comparatively rare sulphide of nickel and cobalt. It is known to occur at Mine La Motte and in the St. Louis Smelting and Refining Company mine, and has been concentrated at both places. It occurs as fine-grained, silvery-white masses with a pink tint and is usually intergrown with chalcopyrite. Tarr[1] reported finding octahedrons of siegenite with diameters of 3/8 inch, but none of these have been found by the writer. Siegenite is found in the open cut at Mine La Motte and in the mines of the St. Louis Smelting and Refining Company.

Sphalerite is a rare mineral in the Fredericktown deposits. The disseminated lead deposits of southeastern Missouri are generally characterized by their low zinc content. A small amount of sphalerite occurs in the Park City mine as veins in Lamotte sandstone and in granular form associated with other sulphides near the Lamotte-Bonneterre contact. Tiny greenish-yellow crystals of sphalerite occur in dolomite vugs on the dump at the Nifong prospect shaft east of Fredericktown.

Bravoite is a rare iron-nickel sulphide which was recently discovered by Rasor[2] in ore from the St. Louis Smelting and Refining Company mine. It was found in a polished section and has not been observed megascopically. This is the only known occurence of the mineral in North America.

Millerite has been found in small quantity in the Park City mine. The only specimen observed by the writer was a group of acicular crystals, each of which was slightly twisted. The specimen had been obtained by the U. S. Bureau of Mines from a tar-like substance which is often found in openings in the Bonneterre formation.

Cerussite occurs where surface water has come into contact with the galena. The mineral is present as single crystals and multiple twins up to 1/4 inch in length. Crystals 1 1/2 inches long are reported to have been found in the old surface workings at Mine La Motte.

Bieberite is found at Mine La Motte as pink efflorescences adjacent to seigenite. Microchemical tests reveal that nickel as well as cobalt occurs in the mineral. This is probably due to the presence of some *morenosite*. Both minerals are reported by Tarr to occur at Mine La Motte.

Malachite is found as earthy, green encrustations on most of the older mine dumps and especially at Mine La Motte.

Dolomite is present as both the rock and the mineral. As part of the Bonneterre formation, it constitutes the country rock for the ores. The mineral dolomite occurs in pink to white rhombohedral crystals lining vugs.

[1]Tarr, W. A., Origin of the southeastern Missouri lead deposits Econ. Geol., vol, 31, no. 7, p. 747, 1936.

[2]Rasor, C. A., Bravoite from a new locality: Econ. Geol., vol. 38, no. 5, 1943.

Calcite is common in veins and as crystals filling cavities in the dolomite. Most of the crystals are small and belong to the dog-tooth variety.

Aragonite occurs in limited quantity at Mine La Motte in the old surface diggings. It is usually found in thin, white cleavable masses and slender radiating crystals up to an inch in lengths.

Quartz is present in sand grains in the country rock and occasionally as slender, colorless crystals in the more open ground.

Dickite is found as snow-white scales in the bottoms of some of the vugs.

Limonite is widely distributed in the oxidized zone and on the older mine dumps.

Glauconite is a primary constituent of the Bonneterre dolomite. It occurs in small green scales, pellets and clay-like masses in the lower part of the Bonneterre formation. This mineral is called chlorite in the old reports on southeastern Missouri.

Other minerals which have been reported as occuring in the disseminated sulphide deposits of the Fredericktown district include: *anglesite, annabergite, asbolite, azurite, brochantite, gypsum,* and *plumbogumnite.*

ANOTHER UNUSUAL FIND IN NEW JERSEY

BY W. H. HAYES

Irvington, N. J.

In the September issue of *Rocks and Minerals* the article regarding an unusual find at Prospect Park, N. J., proves to be interesting to collectors in northern New Jersey. So, let's add another one to the list of finds, this one from Summit, in Union Co. The date of the find was Sept. 7th, 1946. It came about when the writer, in hunting among the big boulders from a blast in the trap rock, saw a crack in the top of one of them, and being somewhat nosey wondered what might be in it, and so a heavy hammer and chisel were put to work to find out. When the boulder fell apart there was revealed a pocket about 4 inches in diameter, and within this pocket there lay a cone-shaped formation that could be and was picked out with the fingers. Examination showed a specimen of the following description:

The cone is hollow, roundly pointed on one end, 3 inches long, 2¼ inches wide at the other end with a thickness at the point of ⅜ of an inch; it tapers to the widest part to about the thickness of paper. It is composed of quartz and is build up of layers after the manner of marine shells, and as a whole resembles the form of a thick rounded oyster shell. Pure white is the color of the quartz, and some of the laminations are almost paper-thin. On the outside of the cone there are groups of tiny colorless, transparent, slender crystals of calcite, sharply terminated. Intergrown with the calcite are hemispheres of pale lemon-yellow prehnite. There is also a patch of a dark brown mineral that may be limonite, as this mineral is associated with the others at this quarry.

The real beauty of the specimen, however, lies in the inner part of the cone. It is partially covered with the same two crystal forms, namely prehnite and calcite, and their beauty is enhanced by the cleanliness and purity of the whole inner cavity of the cone. Perfectly terminated transparent calcite crystals, and prehnite hemispheres, of the same pale lemon-yellow color as stated above, excite one's admiration. There are also tiny transparent calcite crystals between some of the laminations of the cone.

To top it all, when the cone is placed under a Purple-X lamp the calcite fluoresces a pale bluish-white, while the prehnite glows a beautiful red. After the light is turned off the calcite continues to glow with phosphorescence for a minute or two.

TWO LOCALITIES NEAR PLAINVILLE, MASS.

BY A. M. DIXON
Foxboro, Mass.

Plainville is a little village in southwestern Norfolk County, of eastern Massachusetts. Near the village are two localities which apparently have never appeared in print and this article will describe them briefly

Bird & Son's Slate Quarry

About 1¼ miles northwest of Plainville is Bird & Son's slate quarry. The stone is crushed and used as an undercoat on asphalt roofings as the color varies too much for the final coat. The quarry has been in operation for the past eleven years. Previously, about 40 years ago, two local farmers drove a tunnel into the hill and were mining coal which is present in small masses only. The slate deposit is estimated by experts to be 1,000 feet thick.

To reach the quarry, go north from Plainville on Mass. 1A (South St.) from its intersection with Mass. 106 (Bacon St.) for 1.3 miles, turn left on Cross St. and go 0.4 mile—keep straight ahead on gravel road (Cross St. turns to right) which is only 0.4. mile long and ends at the quarry. The quarry is 700 feet long, 60 feet wide at its widest point, and about 40 feet deep; it can be seen easily from Route 1A.

Part of the quarry caved in last August burying a large shovel. Fortunately no one was hurt but the shovel, which is now dug out, was badly damaged.

Minerals Found at Quarry

Among the minerals found at the quarry are the following:

Calcite: White platy masses, some embedded in graphite. Some of the calcite is brownish in color as if it were grading into ankerite.

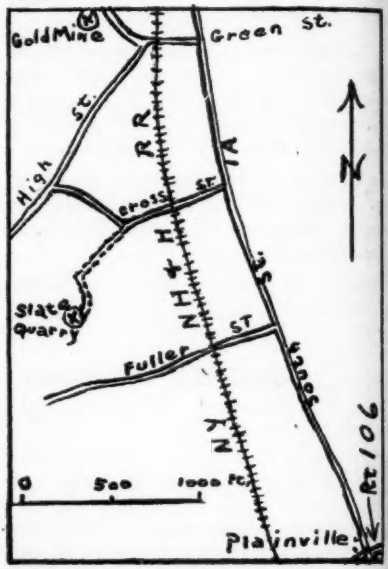
Coal: Lustrous, small masses of anthracite on black fossiliferous slate.

Graphite: Lustrous, black, earthy masses with calcite.

Limonite: Brownish stains on slate.

Pyrite: Small lustrous striated cubes in sections of a large fossiliferous tree trunk (slate).

Quartz: Small milky masses with anthracite in slate.



Sketch map showing location of Bird and Son's Slate Quarry and the Wrentham Gold Mine.

Fossils Common at Quarry

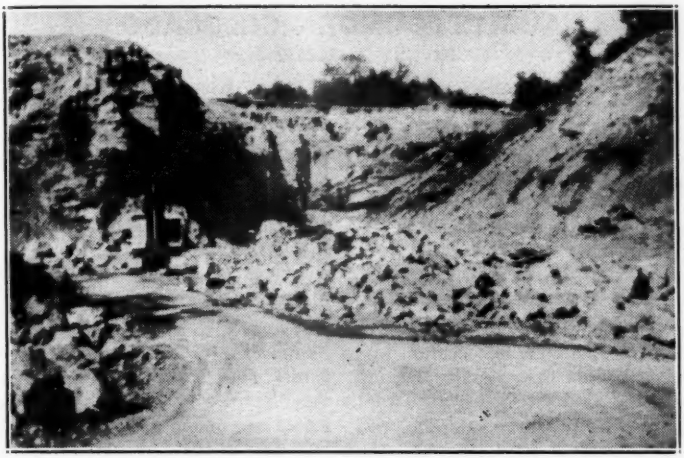
In addition to minerals, fair fossils of ferns, grasses, leaves, and tree trunks can be found but the rock has the bad habit of cracking at right angles to the fossils.

The writer has visited the quarry a number of times, once with D. S. White and another time with B. F. Morrill (a R.&.M.A. member).

Wrentham Gold Mine

From the junction of Route 1A and Cross St. continue north on 1A (towards Wrentham) 3.4 miles away) and go 0.6 mile, turn left on Green St. When you reach the top of the railroad bridge, look up the tracks, to the right, and the slight embankment seen is where the spur track ran to the mine. Continue on and take the right fork and stop just as you reach the first house on the right (0.4 mile from Route 1A).

Directly across the road at the house (to the left) you will see two sets of



Bird and Son's Slate Quarry near Plainville, Mass.

railroad tracks running into the woods, follow the old right of way, which is easily seen, to the mine, a few hundred feet away.

The first thing noticed on reaching the mine will be the galvanized iron tanks, about 20 ft. in diameter and 15 ft. high. These are arranged in three tiers on the hill (one single tank and an old steam boiler are encountered first). Above that, setting on heavy timbers, are four more in a row and finally, still higher up, are three more.

Nearby is a heavy foundation made of timber which evidently supported the crusher. Above, and below that, are two masonry foundations which may have been loading platforms.

About a hundred feet north of these foundations is a long cut, about 200 ft., running into the hill, which evidently was the mine as small gauge rails are still in it. Beyond the cut is the wreck of a crusher lying out in the woods, how it got there I do not know.

The mine was supposed to have been operated originally by some local people who were supposed to have found gold but not enough to pay for mining it.

Sometime around the turn of the century a stock company was formed and stock was sold in the West, none locally. That outfit put in the equipment which is still there. After that venture folded up, the mine was bought by a contractor who used the equipment to crush the stone for road building. Why he abandoned the project is not known but he left behind quite a large pile of crushed stone. Judging by the trees that have grown up all over the place, nothing has been done there for the past 20 years or more.

The rock at the mine is a reddish granite which consists of feldspar, quartz, and a little black mica. Nothing of interest in the line of minerals was found.

Acknowledgment

The writer's thanks are extended to Mr. Staples, engineer in charge of the Bird & Son's quarry, for many courtesies shown him and also for the story about the Wrentham gold mine.

Mineral Exhibit and Sale

(Continued from page 738)

minium on the tables and when he was answered "No" he immediately bought a piece of polished Russian malachite.

Collectors came in from New York State, New Jersey, Pennsylvania, and even Washington, D. C. This first of Mr. Albanese's shows brought out the remark from him; "Wait until the next show, it will be 100% better than this one." We hope so. W. H. Hayes

Irvington, N. J.

AUGITE FOUND IN COLORADO

BY GUY B. ELLERMEIER

Augite is commonly observed in the form of granules disseminated through the mass of basic eruptive igneous rocks. Crystals of fair size are by no means common. Heretofore, but three regions, so far as the writer can learn, have produced fine crystals: Bohemia, the Fiji Isles., and Montana. The writer believes that he is first to report Augite crystals in Colorado that will compare favorably, either for size or quality, with those from any other locality.

Some ten years ago while hunting deer in Grand County, Colo., the writer discovered a basalt dike studded with shiny black Augite crystals. On the ground roundabout lay many loose crystals, some of which he then picked up. A few days later, after the deer season closed, he returned to the spot for a more leisurely examination of the dike. The crystals range in size from micro-mounts up to, occasionally, 5/8" in length, the average being 1/2". They are stout prisms with four wide and four narrow faces that give the prism a nearly square appearance; all crystals, except those that have been broken, are doubly terminated, and are so perfect in form that they may well have served Dana as the models for his drawings. About 10% show penetration twinning; rarely a cruciform twin may be found.

Associated with the Augite, a pink mineral occurs either in the form of small spheroids or as irregular patches. One of the zeolites, probably, though no attempt has been made at identification. Seams in the rock are filled with crystallized calcite, and near the dike a ledge affords crystallized calcite in specimens as large as one might wish to carry.

The augite dike outcrops along the east face of the high, timbered ridge that divides Trail Creek valley from Gold Run Creek valley. This ridge takes off from the south shoulder of Gravel Mt., and extends in a southerly direction about six miles to terminate abruptly at Willow Creek, into which stream both of the above mentioned creeks flow. Four miles north from Willow Cr., the altitude of Trail Cr. valley is 8,500 ft., westward the crest of the ridge must be close to 1000 ft. higher. The crystals, though, are to be found in but a limited area about 1/4th of the distance below the summit. Here a basalt dike, hardly more than fifteen feet wide, with trend parallel to the course of the ridge outcrops in a series of low pinnacles and hummocks for a distance of about 200 yards. The rock mass seems to weather very rapidly, so that the crystals are released to lie amid the gray rock talus and dust at the foot of each pinnacle.

Many other dikes of similar appearance outcrop, and lava flows form ledges, along the crest and sides of the ridge, but the writer has never been able to find crystals of any size at any other spot either on that ridge or elsewhere in that locality.

The geological formation of the region is Marine Cretaceous, the limestones, shales and sandstones being sharply uptilted. Tertiary basaltic flows cap many ridges. Numerous basalt dikes cut through both the valleys and the mountains ridges; a few andesite dikes are to be met with in the general region; rhyolite dikes occurs at rare intervals and when found are apt to carry more or less chalcedony, often finely colored. Incidentally, at the south end of the ridge may be found marine fossils in a hard blue shale.

In July, 1946, the writer returned to the augite dike accompanied by four Boy Scouts who are also members of our Colorado Mineral Society. In two years time these boys, Wendell Mohr, Tyke Meissner, John Meissner and Gordon Schindel, have become able mineral collectors, whether in the field or when identifying minerals in their own home laboratories. Indeed, one of the boys this past summer, discovered a brand-new locality that produces fine epidote crystals in a region where no minerals

have ever before been reported. But that is the story for a later article. Suffice it now to say that each of the four boys has presented the Colorado State Museum with one or more mineral specimens that he has himself collected in the field, and which the Museum either did not then possess or else did not have from the given locality. In acknowledgment thereof each boy has received a certificate signed by Gov. Vivian, Governor of Colorado, attesting that the donor has made a valuable contribution to the Museum.

On this occasion we each picked up about fifty perfect crystals. Some of the calcites were brought home by the boys who later made tests for fluorescence. Using the Mineralight as an activating agent, they reported that the calcites fluoresced a mottled blue and yellow. If that be an unusual color reaction for calcite, perhaps it indicates the presence of some other mineral as an impurity.

Two weeks later the writer, in company with Mr. Chester Howard, Pres. of the Colorado Mineral Society, again visited the augite locality. Loose crystals were as plentiful as before, and we found it unnecessary to collect other than doubly terminated crystals. Mr. Howard found one large cruciform twin, and we were able to obtain a few specimens showing crystals in matrix. Matrix specimens were, however, difficult to obtain. Where the parent rock was unweathered the basalt was so hard that the crystals tended to break with the rock, whereas the weathered rock was so friable the specimen was apt to crumble in the hand.

It does not seem feasible to write more specific directions for finding the augite dike. On one occasion the writer drew a map and gave some friends minute directions that should have guided them to the dike. However, they failed in their quest, the reason being that for considerable distance one must traverse heavily forrested country, and in the timber no landmarks can be seen. Perhaps the writer could not have returned to the spot so readily had it not been that for over twenty years he owned a ranch on lower Trail Creek and was fully acquainted with the surrounding territory.

ROLY O. COOPER

(Obituary Notice)

It is with regret that we announce the death of Roly O. Cooper, of Santa Barbara, Calif., who passed away on August 6, 1946, at the Soldiers Hospital in Sawtelle, Calif. Death was due to cancer. He was 55 years of age.

Mr. Cooper was born in Kansas City, Kans., in 1891. When only 12 years old his parents moved to California and settled in Lompoc where they owned a farm. In 1926 he came to Santa Barbara where he secured employment with the Puritan Ice Company for whom he worked steadily as foreman until his health began to fail and retired in October, 1945.

Mr. Cooper was a quiet retiring sort of person of a very cheerful nature. Very shy except with people he knew. Always ready to befriend those in need. He was a man of fine character with a beautiful philosophy of life, a great lover of nature and during his life made a study of geology, chemistry, and mineralogy. He was a member of the Rocks and Minerals Association since 1930.

It was through our association with him as our neighbor that we became interested in mineralogy and lapidary. He was teaching my husband chemistry while I studied lapidary under his direction. So now we are going to continue on with this work which he loved so deeply, as he would wish us to do. After he became ill, he gave us his mineral collection and we bought his lapidary equipment.

We now have a small studio shop in our garage in which Mr. Cooper and my husband set up the lapidary equipment and where we spend every free hour working at our hobby. Mr. Cooper worked in the studio among the gem stones even when his health was gone and he knew he had but little chance of recovery. He said he got peace and comfort from his suffering by doing the work he loved.

Mr. Cooper was a member of the Veterans of Foreign Wars. He had a military funeral that was simple but impressive. His only survivor is his niece, Miss Alma Cooper, of Lompoc, Calif.

Mrs. Wm. Pfleging.

A HITCH-HIKING TRIP THROUGH NORTHERN ONTARIO

BY KEITH R. DAHLBERG

862 Ostrom Avenue, Syracuse 10, New York

Having a week to spare between the end of a job in Wisconsin and the beginning of college back home in Syracuse this Fall, I took the opportunity to travel home through Ontario, Canada, and visit the mines of Sudbury and Cobalt. I found out what minerals to expect, through correspondence with two or three rockhounds and mining companies.

I started out from Green Lake, Wisconsin, early Monday morning, September 9. My route went through Oshkosh, Green Bay, Escanaba, and St. Ignace the first day, and I reached Sault Ste. Marie that night. The people who gave me rides were very friendly, and would often help me out even though going only a few miles. I had sixteen rides that day, and travelled four hundred miles.

The next day, after seeing the Soo Locks, I crossed to the Canadian side and started for Sudbury, not quite two hundred miles away. Rides were not so plentiful here, but I finally reached Sudbury about 4:30 after travelling through some rather desolate-looking country.

Wednesday, I began hunting for minerals. I took the trolley out to the suburb of Copper Cliff, where the International Nickel Company has its plant. I understand that this area produces well over half the world's supply of nickel, plus some copper and a little gold and platinum. One of the men at the office, a Mr. Simcox, told me that visitors are not allowed in the mines and that there are no mine dumps, since the waste material is put back in the old shafts. However, he generously offered me a tour of the big smelter and gave me several small specimens of the chief ores—pyrrhotite, pentlandite, and chalcopyrite. The smelter is a huge affair, a quarter of a mile long and about eight stories high, and has three of the largest smokestacks in the world. I saw the ore roasted, poured into great converters, and put through a chemical process which separates the copper from the nickel. My guide told me the nickel is then sent to Port Colborne, on Lake Erie, for electrolytic refining, and the residue from that is sent to England where precious metals are extracted. Even though I obtained no mineral specimens to speak of, I felt that the morning had been far from wasted.

Since there wasn't much more I could accomplish in Sudbury, I went on to North Bay that afternoon, and up to Cobalt on Route 11 the next morning. I waited at one place three hours for a ride, and so didn't get there till about 2:00. After getting a room, I started out to find minerals. Crossing a stretch of waste and climbing a hill, I came to an abandoned mine. Almost immediately I noticed a pink coating on a few rocks which I supposed was erythrite or "cobalt bloom," a hydrous arsenate of cobalt, and later conversations with miners proved it to be so. It is an oxidation product of smaltite, the cobalt ore. At another nearby mine I picked up a few small pieces of smaltite. Another mine farther away was even more fruitful. I found two big rocks on the dump, one loaded with smaltite, the other I felt sure was cobaltite, since it showed cubic cleavage, but when I got home, I discovered that my correspondents hadn't mentioned the galena found there! Other specimens included a piece of asbestos, calcite crystals coated with chalcopyrite (?), and a few unidentified pieces. If anyone else hunts minerals in Cobalt, I suggest he first contact Mr. Arthur Cole in the nearby town of New Liskeard, who is an authority on the minerals of this region, because good specimens of nickel and silver ores are found, too. I tried to locate him, but he was always one jump ahead of me.

Friday morning, I started home, travel-

(Continued on page 768)

ALFRED JOHAN HARSTAD

JUNE 30, 1886—SEPTEMBER 5, 1946

Alfred Johan Harstad, one of Montana's most colorful figures in mineralogical circles, lost his life on Thursday, Sept. 5, 1946, when a car he was driving plunged off the highway nine miles east of Bonners Ferry, Idaho, and toppled down a 400-foot embankment into the Moyle River.

Mr. Harstad was born in Grove City, Minn., on June 30, 1886, and had lived in his adopted home, Montana, for practically 35 years or more. In 1915 he settled in Wolf Creek, opened up the Gem Shop and began dealing in minerals. In the fall of 1931, he moved to Helena, the capital of the state, where he resided ever since. Up to within a few years ago, he operated under the name of the Gem Shop but in recent years he more or less dropped dealing in minerals and took up the work of the lapidary, specializing to a considerable extent in Montana agate. He had recently begun to cast both gold and silver ring mountings which he had planned to produce on a wholesale basis, and was well on the way of making this a successful venture.

Mr. Harstad served in World War I, being in France and on the other fronts during that period. He was with the celebrated 163rd Montana Infantry Regiment.

His trip made recently, included the Boise, Idaho, Convention of the Northwestern Federation of Mineralogical Societies, and from there he had gone into the State of Washington to visit with relatives and to place his newly developed products before the various dealers. He was on his way home when the accident that caused his death took place. Those of us interested in the pursuit of mineralogy will miss a genial friend, and a pleasant and wholesome companion in the field, when collecting.

Mr. Harstad is survived by his widow, Mrs. Julia C. Harstad, a 17-year old son, John, who recently enlisted in the Navy and is in the San Diego, Calif., area, and a 12-year old daughter, Mary Anne. The sympathy of Rocks and Minerals Association is extended to Mrs. Harstad and to her children.

ALFRED JOHAN HARSTAD

Mrs. Harstad will continue the business and may add a few items to it.

BIBLIOGRAPHY

In the early days of *Rocks and Minerals,* Mr. Harstad was a frequent contributor and a regular advertiser. For a number of years he ran *The Sluice Box* under the name of A. Rifle. His two oustanding contributions were the fol lowing articles.

The Agate. *Rocks and Minerals.* March, 1927, pp.3-5

Montana Agate. *Rocks and Minerals,* Nov. 1938, pp.323-328

Charles N. Kessler
Peter Zodac

Mrs. Speck on Sick List

We are very sorry to announce that Mrs. J. E. Speck, Wisdom Star Route, Warsaw, Mo., has been sick for some time. During her illness unanswered correspondence accumulated considerably. As soon as she is able to give this matter her attention, she will answer all letters and will also send out packages to whom minerals are due.

Mrs. Speck is a member of the R. & M. A.

FRANKLIN QUARRY, FRANKLIN, N. J.

BY PETER ZODAC, Editor Rocks and Minerals

An interesting limestone quarry in northern New Jersey is the old Franklin Iron Co's quarry, in Franklin, N. J. The quarry has been abandoned for some time and permission to enter it must be obtained from the New Jersey Zinc Co., in Franklin. The quarry is quite a large one and is noted chiefly among collectors for its nice norbergite specimens which occurs in large amounts as small brownish masses and grains in the white crystalline limestone, associated with graphite, pyrrhotite, and other minerals.

Some of the minerals found in the quarry are:

Arsenopyrite: Nice crystals have been found in the limestone associated with pyrite, pyrrhotite, graphite, and other minerals.

Amphibole (Edenite): Small, rough, grayish crystals in limestone.

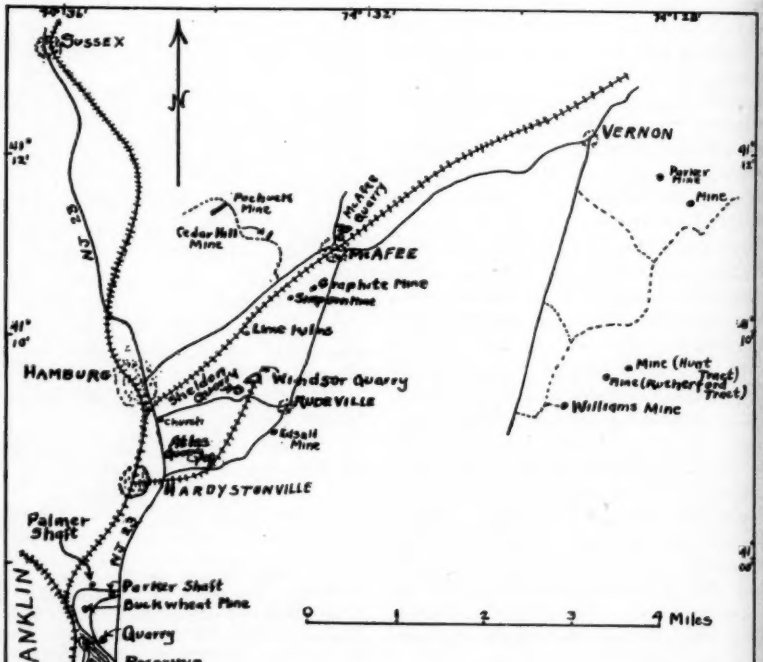
Apatite: Small greenish crystals in limestone.

Fluorite: Small purplish masses in limestone.

Graphite: Common as small black flakes in limestone.

Norbergite: See above.

Phlogopite: Small bronzy flakes and crystals in limestone.



Sketch map showing location of the Franklin Quarry (marked "Quarry") in Franklin, N. J.

Pyrite: Nice small crystals have been found in the limestone.

Pyrrhotite: Occurs as small masses and grains in the limestones associated chiefly with norbergite and graphite.

Spinel: Small black crystals associated with norbergite in limestone.

Titanite: Nice dark brown crystals have been found in the limestone associated with edenite, graphite, pyrrhotite and tourmaline.

Tourmaline: Nice brown crystals were once abundant in the quarry where it was found in association with arsenopyrite, fluorite, pyrite, pyrrhotite, titanite and other minerals in limestone.

The Franklin Iron Co's quarry is located close to the reservoir and south of the Buckwheat mine (see sketch map for its location on which it is marked "quarry").

"Herkimer County Diamonds"

A special display of the famous Herkimer County quartz crystals, so widely known as "Herkimer County Diamonds," from the collection of Donal Hurley of Little Falls, (Herkimer Co.), New York, has been placed in the center of the Morgan Hall of The American Museum of Natural History, New York City. This loan collection will be exhibited for a period of two months. It includes a dazzling suite of sparkling crystals spread out on a black velvet background to scintillate like the rarer gem for which they are so often mistaken. Opposite these eye-catching flashes we find spread out in the adjoining case some of the most interesting examples of deformations, crystal intergrowths, and inclusions that Mr. Hurley has found in years of collecting. Much is shown to interest the student as well as the casual visitor. Bubbles, carbon inclusions, perfect quartz crystals, hematite, siderite and pyrite may be seen completely inclosed within the clear quartz of the typical crystals. The crystals have been often described; they are found free in stream beds where they have weathered from the inclosing limestone and as well formed crystals in small solution cavities in the solid rock. They range from dimensions of several inches down to microscopic sizes, so small that 190,000 would weigh but one ounce.

Reference

The most beautiful quartz crystals, by Donal Hurley. *Rocks and Minerals,* August, 1940, p.269. (A short article on the Herkimer County "Diamonds").

Autunite at Mauch Chunk, Penn.

Autunite as pale yellowish incrustations on Pottsville conglomerate has been found at the carnotite locality in Mauch Chunk, Penn. The mineral is associated with carnotite (also yellow) and both minerals so closely resemble each other at the locality that autunite can easily be overlooked but—autunite is fluorescent and carnotite is not. Under the Mineralight autunite fluoresces green and this is how it was discovered. Out of dozens of specimens examined only one showed autunite which occurred as small scattered incrustations on a carnotite and limonitic stained quartz conglomerate.

The carnotite occurrence borders the left (south) side of U. S. 209, about one mile west of the New Jersey Central R.R. station. For hundreds of feet the conglomerate is stained yellowish—the yellow of course being carnotite. The carnotite has never been mined as it is present in small amounts only— as incrustations.

Mauch Chunk is a small village (3,000 pop.) in southern Carbon County of eastern Pennsylvania.

REFERENCE

The Mauch Chunk Carnotite, by Richmond E. Myers, *Rocks and Minerals,* October, 1935, p.155.

Zollman Not Connected with Brazilian Govt.

With respect to the item on page 583 of the September, 1946, issue of *Rocks and Minerals,* Joseph Zollman wants it known that he is not associated with the Brazilian Government as might appear, however he is representing Ad. Zollman & Cia, Ltda., of Rio de Janeiro.

The Amateur Lapidary

SCALLOPED BEZEL

BY LUCILLE SANGER

1922 Newport Avenue, Chicago 13, Illinois

There is a peculiar pleasure in doing something which causes everyone who witnesses the process to say "It won't work; it's not strong enough." This was freely predicted about an ordinary spring type bracelet of plain design, and so far the bracelet has had hard wear for a year. It differs from other bracelets of this kind by having a smooth flat back which allows the bezel to rest directly on the wrist.

Selecting the stone to be used is a simple matter for there is only one which will take the beating necessary when the stone is being set. That stone is jade. Wyoming jade was used and it readily withstood some very hard hammer blows on the bezel. This pattern will be easy for those who have made the standard type of bracelet as it varies little.

Cut a stone an inch and a half or two inches long and proportionately wide. It should be cut rectangular with rounded corners. Make a bezel with a solid back using twenty or twenty-two gauge sterling. Use twenty-six gauge for the sides.

Cut two shanks of twenty or twenty-two gauge sterling long enough so that when the end is fitted to the sides of the bezel the bracelet will fit the wrist for which it is intended. Otherwise the finished bracelet should be five and a half or six inches long. The shank should be three-fourths to an inch wide. At the bezel end of the shank, saw bars so that they run parallel with the edges of the bracelet shank and end at the bezel. Spread the bars so that they are about an eighth of an inch apart at the bezel.

File the stems of the shank until they fit snugly to the bezel. Round the open ends with a file.

The bezel is decorated with solid balls and it is the placing of the balls which makes the scalloped effect. Melt eight balls which are about as high as the bezel and as wide as the stems. Flatten them a little on the bottom with a file. (Here is a good opportunity to use up the surplus balls made for the jade pin described in a recent issue).

Lay the bezel on the asbestos pad and fit the shanks carefully to it. Flux and throw the torch on to heat the piece slightly. Fix the solder and flux again, including the places where the balls are to be placed. Cut squares of solder slightly smaller than the balls and lay them on the stems and touching the bezel. Place the balls on top of them and flux well. If the flux washes them a little out of place, as it is likely to do, replace them and throw on a little heat to hold them in place. Flux again. The bracelet is now ready to be soldered. Heat it from the ends towards the middle and avoid throwing heat on the twenty-six gauge as much as possible. Concentrate on each side in turn until

The Scalloped Bezel

the piece is all soldered. Place in a warm pickle. Remove and do any necessary smoothing with file and emery paper.

Set the stone in usual manner but do not hammer the balls in an effort to push the bezel against the stone. Take a small smooth tool which will fit between the balls, and hammer the bezel up tightly against the stone. If jade has been used there need be no fear of breakage and it is very important to get a tight fit in these small places. When the stone is set there will be a row of scallops on each side of the bezel as shown in the sketch.

Bend the bracelet by placing the shank ends, in turn, over a mandrel and pounding with a rubber or horn hammer. Give a brilliant polish to the silver.

I'll Be Seeing You!

In the examinations of the eyes of student candidates for commissions as pilot, bombadier or navigator, the flight surgeon used a multiple Maddox rod. This was based on the principle that if several glass rods are placed together on a plane and a light thrown thru them, a line of light would appear to be at right angles to the direction of the rods.

Consider the same principle of physics in regard to chatoyancy. A certain fibrous quality is seen in all stones that can be cut to show a cat's eye. The fibres are parallel and perhaps bundled like a mass of glass fibres.

By Tommy—"The Experimenting Minerologist."

Laurium, Greece's Greatest Mineral Locality

The ancient silver mines of Laurium, located about 60 miles southeast of Athens, is the greatest mineral locality of Greece. Laurium, also spelled Laurion, is on the Bay of Ergastiri, in the sotuheastern part of the country. Laurionite, a hydrous chloride of lead, is only one of the many interesting minerals found at the locality.

Gem Village Rock Show

Gem Village, the unique Rock Colony of America, is located in a little valley two miles west of Bayfield, Colorado, on U. S. Highway 160. It held its annual Rock Show September 7 and 8, 1946.

Exhibitors from the Village were Frank Morse of The Colorado Gem Company; S. N. Green of the Gem Exchange; and Wilfred C. Eyles, producer of the famous "Streamliner" diamond saws.

The Ellsburys from Marvin's Rock Shop, with their distinctive western jewerly; Mrs. Geneva Brown, private collector; Mr. and Mrs. Reuben Hood and son, David, of The Mountain Gem and Supply Company all from Durango, Colorado. The Hoods are inventors of the new Cone Lap and they demonstrated the technique of the new invention.

Others with displays were Mr. and Mrs. Claude C. Neely and Mr. and Mrs. Jim Wiley, private collectors from Cahone, Colorado; N. S. Bellman and Jesse L. Myers, both of Pueblo, Colorado; Oscar Gisler from San Francisco, California; Mr. and Mrs. Bill Little of the La Plata Gem Shop, Hesperus, Colorado; O. D. Elarton, Salida, Colorado; Philip Griebel, Fruita, Colorado; Earl and Wesley Floyd, Trinidad, Colorado; Wm. W. Davis, Monte Vista, Colorado; Herbert E. Cox and Donald H. Shaw, both of Center, Colorado; and O. D. Maggard from Congress, Arizona.

The displays included world famous materials, from the finest cabinet specimens to the rarest in cut gems, Thousands of cut stones and tons of uncut materials were for sale at reasonable prices.

The list of visitors covered many sheets in the register.

Collectors and dealers from the world over will soon learn that if they want to see rocks and minerals and the finest in gems, the place to go to—is the one and only "Gem Village" in southwestern Colorado.

By—Lottie M. Neely.

Fluorescent Articles Wanted

Editor R&M:

Congratulations on the 20th Anniversary of *Rocks and Mineral*! It is the third number of my subscription that I have received. Since the subscription was started, the advertisments in *Rocks and Mineraals* have enabled me to obtain eleven very fine specimens for which I owe the magazine a debt of gratitude. I am hoping to see more articles on fluorescence. Wishing you and Rocks and Minerals another twenty years of success.

Sept. 27, 1946

Jay Weissberg
New York City

Club and Society Notes

Pomona Valley Mineral Club

The September meeting was held at the High School, Pomona, Calif. Several sponsored guests applied for membership. Door prizes went to Mrs. L. G. Taylor, Mr. Arland Harris and Mr. Heber H. Clewett. A fine exhibit of quartz crystals from interesting collections were on display.

Miss Genevra B. Dow gave a brief talk on "SAPPHIRES"—the gem stone of the month.

Mr. Heber H. Clewett—instructor in Physics at Pomona High School—was the speaker for the evening. His subject, "QUARTZ OSCILLATOR PLATES" was very ably handled and highly informative to the average person, as many of us did not realize how vitally important they are in any radio communicative system. Unfortunately, only a small proportion of quartz crystals are satisfactory for the making of oscillators, and until the last three or four years only crystals from Brazil were thought to be usable. Much, even of the Brazilian quartz, had to be culled out for such imperfections as fractures and twinning. During the war, with its heavy demands for more and more plates, it was discovered that these oscillators could be made much smaller in area than had been thought possible, and that certain flaws such as intrusions, cloudiness, and phantoms, once deemed cause for discarding, did not, after all, impair the oscillation properties of the specimen. It was found, too, that some of the quartz from Virginia, Arkansas, North Carolina, and California could be used.

He explained how the oscillator plates are cut from quartz crystals, how they are then ground with great precision to the dimensions which will give them the desired electrical characteristics. The unsefulness of the quartz oscillator lies in the fact that such a plate, excited by an oscillating electric current, will vibrate mechanically at a very constant rate, and in such a way that electric oscillation is "locked in step" with it. In appearance, a quartz crystal oscillator plate is a simple plate, usually square or round, and quite thin. During the war they were one of the major, top-priority, necessities for the success of military operations and the very lives of our men depended upon them. In the first year of the war alone, seven million plates were used.

For the benefit and pleasure of other radio operators, Mr. Clewett holds AMATEUR RADIO LICENSE W6QE.

Edythe M. Thompson
Pub. Chm.

Pomona Valley Mineral Club

POMONA VALLEY MINERAL CLUB held its October meeting in Pomona High School. The Club, which was founded only a little over a year ago, continues to enjoy a fast-growing and very active membership.

Mr. Glen Weist read an interesting paper on "THE BIRTHSTONE OF THE MONTH" and displayed his private collection of opals.

Mr. and Mrs. Kilian E. Bensusan, both members of the Royal Society of Mineralogy of London, and now residents of San Fernando, California, provided the high light of the evening's program. Mr. Bensusan's talk on "COLLECTING GEM STONES IN BRAZIL" was vividly illustrated with slides which depicted much of the geology of that country—showing the many difficulties and hazards encountered in their mining activities. Mr. Bensusan operated a mine there during the war supplying mica to the U. S. Government. The pictures revealed, too, the interesting, quaint towns and life among the natives.

Their colorful collection of Brazilian minerals and gems which they exhibited were enviously admired.

Door prizes were won by: Mrs. B. L. Burnett, Miss Patricia Bigham and Glen Weist.

Edythe M. Thompson
Pub. Chm.

Wisconsin Geological Society

A regular meeting of the Society was held on Oct. 7, 1946, at the Milwaukee Public Library, Milwaukee, Wisc. The chief attraction at this meeting was a movie-talkie on "Arizona, mineral resources and scenic wonders." At the close of the picture, Benedict P. Bagrowski conducted a short mineral quizz.

New Jersey Mineralogical Society

A regular meeting of the Society was held on Oct. 1, 1946, at the Public Library, Plainfield, N. J. Mr. James Lindsay, of the Abrasive Machine & Supply Co., showed two sound motion pictures on "The Romance of Carborundum."

Pacific Mineral Society

A dinner meeting of the Society was held on Oct. 11, 1946, at Scully's Restaurant, Los Angeles, Calif. The speaker was Richard Buhlis whose subject was "Minerals of Arkansas."

Yavapai Gem and Mineral Society

Guest speaker at the September, 1946, meeting of the Yavapai Gem and Mineral Society, Prescott, Arizona, was Homer R. Wood, former State Senator and an old resident of Arizona. His stories of the early prospectors and trail blazers around Prescott were both humorous and interesting. They dated back to the early 1860's, when the first gold was discovered in Arizona by Captain Joe Walker and his party.

Ida Smith, Secretary.

Queens Mineral Society

The regular meeting of the Queens Mineral Society was held on Thursday evening, October 3, 1946, at the Church of the Resurrection, Richmond Hill, N. Y. There were 36 members and guests present. The President appointed a Trip Committee consisting of Robert Shepard, chairman, Arthur Rocnunas and Bernard Zettl. The Club accepted into membership Mr. Paul H. Nisely. Mr. Ernest A. Maynard, a member of the Society, the speaker of the evening, discussed collecting chalcedony at the Silex Bed at Ballast Point, Florida, illustrating his talk with Kodachrome slides and specimens he had collected. He showed the specimens under a fluorescent lamp also. To each person present, Mr. Maynard gave a specimen of chalcedony from Ballast Point and a specimen of opal agate from Davis Causeway, Clearwater, Florida.

Ruth Grotheer, Secretary.

L. A. Society Has Birthday Party

The Los Angeles Mineralogical Society celebrated its fourteenth birthday at Boos Bros. Cafeteria, Sept. 19th. 1946, with the cutting of a huge cake. Past Presidents night was the main feature of the evening and the Society was fortunate in having most of the past presidents in attendance. Each president in his or her order of service was called upon to make some remarks and suggestions as to the future course of the Society to be followed. The following past presidents serving from 1932 on attended: Dr. Thos. Clements, Mrs. Gertrude McMullen, Dr. John A. Herman, O. C. Smith, M. Ernest Peterson, Jas. C. Arnold, Gordon Funk and Dick Lehman. Door prizes and a book raffle were added features of the evening. About sixty members and guests were present.

Arthur G. Weigel
Pub. Chm.

Mineralogical Society of Arizona

The annual business meeting of the Society was held on Oct. 3, 1946.

A regular meeting was held on Oct. 17th at the Arizona Museum, Phoenix, Ariz. The speaker was A. L. Flagg, President of the Society, whose subject was "Some New England Collections."

Colorado Mineral Society

A regular meeting of the Society was held on Oct. 4, 1946, at the Museum of Natural History, Denver, Colo. The speaker was Richard M. Pearl who discussed current trends in mineral classification and research, modern names of minerals, interpretation of the Dana *Sytem,* and how to understand the silicates.

Rochester Academy of Sciences
(Mineralogical Section)

On Sept. 28, 1946, the Section was invited to an outing and inspection tour of Ward's Natural Science Est., near Rochester, N. Y,

On Oct., 10, 1946, the Section was invited to the home of Mr. & Mrs. Henry B. Henley, Rochester, N. Y., to view their fine and extensive mineral collection.

East Bay Mineral Society

Three meetings and a field trip were held by the Society during October, 1946. On Oct. 3rd, a regular meeting was held in the Lincoln School Auditorium, Oakland, Calif. On Oct. 6th, a field trip was held to Acampo where volcanic bubbles and petrified wood were found. On Oct. 10th, a directors meeting was held. On Oct. 17th, another regular meeting held.

Mineralogical Society of the District of Columbia

A regular meeting of the Society was held on Oct. 18, 1946, at the U. S. National Museum, Washington, D. C. The program consisted of talks by members on field trips made and specimens collected during the past summer.

Central Iowa Mineral Club

A regular meeting of the Club was held on Oct. 4, 1946, at the Y.M.C.A., Des Moines, Iowa. Mr. Mel Lumbard, of Lumbard Wholesale Jewelry Co, was the speaker whose subject was "Identification of precious stones."

Mrs. R. G. Hays, Sec.

Newark Mineralogical Society

The 242nd meeting of the Society was held on Oct. 6. 1946, in the Newark Museum, Newark, N. J. The program was a symposium on summer collecting.

Boston Mineral Club

A regular meeting of the Club was held on Oct. 1, 1946, at 28 Newbury St., Boston, Mass. This marked the 10th anniversary of the founding of the Club. Dr. Wolfe was the speaker whose subject was "Notes on the feldspars."

On Oct. 13th, a field trip was made to the Slocum quarry, East Hampton, Conn.

Los Angeles Lapidary Society

The Los Angeles Lapidary Society held its regular monthly meeting on the first Monday in October at the Police Academy in Elysian Park, Los Angeles, Calif.

About twenty-five members of the society who are interested in the faceted gems have formed an inner group. They meet the second Tuesday of each month and learn and discuss their own particular problems concerning faceting of gems. The more advanced amateurs are doing work that Tiffany's of New York would be proud to display. A similar group interested in silver jewelry may be formed in the near future.

A field trip to the Chuckawalla Mountain area is planned for the latter part of October. Many individual trips have been taken this last summer by members to replenish their supply of gem material.

E. Grace Peters,
(Publicity chairman)

Chicago Rocks and Minerals Society

A regular meeting of Chicago Rocks and Minerals Society was held on September 14, 1946, at headquarters in Sauganash Park Field House, Chicago, Illinois.

A full attendance of members and many guests enjoyed a very interesting evening. The speaker, Mr. Frank L. Fleener, geologist and collector, discussed the subject of Fossils, and the discoveries of buried records of human activities of prehistoric times, unearthed by modern geologists. Mr. Ben Hur Wilson, also from Joliet, Illinois, and himself an authority on field trips, presented the speaker.

Mr. George C. Anderson, the President, presided.

Mrs. Earl E. Clark
Pub. Chm.

Marquette Geologists Association

A regular meeting of the Association was held on Oct. 5, 1946, at the Chicago Academy of Sciences, Chicago, Ill. The speaker was Ben Hur Wilson, of Joliet, Ill., whose subject was "Fossils, their nature and implications."

Miss Mary Riordan is the new Secretary of the Association, taking over the duties of Miss Marjorie Scanlon, who is going to Florida where her work is taking her.

Cincinnati Mineral Society

A meeting of the Cincinnati Mineral Society was held Oct. 20th, 1946, at an Indian Village site a few miles east of Cincinnati, Ohio. This site is being excavated under the direction of the Cincinnati Museum of Natural History, and the nature of the artifacts already discovered indicates that the "Dig" may become an important contribution to American archaeological research. The next meeting of the Society will be held at the Cincinnati Museum of Natural History.

Maine Mineralogical and Geological Society

The first regular in-door meeting of the 1946-47 season was held at the office of the President, Frederic J. Laughlin, 119 Exchange St., Portland, Me., on Sept. 27th. The program consisted of short talks by members on field trips made during the summer.

Mineralogical Society of Southern Nevada

The main feature of the first fall meeting of the MINERALOGICAL SOCIETY OF SOUTHERN NEVADA under the direction of its newly elected president, Mr. Paul Mercer, were the revision of by-laws and discussion of field trips for the coming season.

Regular members as well as new were urged to attend the trips as the Society is forming plans for a display in the near future.

The meeting was interesting, and no less entertaining were Jimmy and Henry, the desert fox and chuckawalla, pets of Mr. and Mrs. Mercer. Members were introduced to them when the meeting adjourned and were invited to the Mercer home for refreshments.

The first field trip will be Oct. 13 when the Society will charter a boat, cross Lake Mead and raid the banded agate and flowered jasper bed at Fortification Mountain.

Florence McMillan, Sec.

American Gem Society
(Northern Ohio Guild)

A regular meeting of the Guild was held on Oct. 8, 1946, at Western Reserve University, Cleveland, Ohio. The program consisted of a lecture on "When and how gems have grown" by Dr. Henry F. Donner, of the University.

Mineralogical Club of Hartford

A regular meeting of the Club was held on Oct. 9, 1946, at 249 Hugh St., Hartford, Conn.

North Jersey Mineral Society

The 18th meeting of the Society was held on Oct. 10, 1946, at the Paterson Museum, Paterson, N. J. The meeting was addressed by George E. Hauze on his recent trip through the New England States and by William B. Aitkin on his trip through Canada.

Northern California Mineral Society

Four meetings and a field trip were held by the Society during October, 1946. On Oct. 4th, a business meeting was held. On Oct. 8th, an organization meeting—jewelry course was held. On Oct. 13th, a field trip was made to the Manhattan where banded onyx, barite and other minerals occur. On Oct. 16th, a general meeting was held in the Public Library, San Francisco. On Oct. 25th, a lapidary meeting.

. . . With Our Dealers . . .

A new advertiser is Harrison S. Cobb, of Boulder, Colo., who has some very nice specimens of sylvanite and ferberite.

Another new advertiser is Ted Schoen, of Mt. Vernon, N. Y., who will surely intrigue collectors with his Magni-Focuser Eye loop.

Jewelry making kits and cut stones can be obtained from C. Frank Miller, of Wilmington, Del.

Hand-made ladies silver rings are obtainable from the Multicraft Shop, of St. Paul, Minn.

Grieger's of Pasadena, California, are direct importers of African Tiger Eye. How many pounds do you want?

Another new advertiser is Kilian E. Bensusan, of San Fernando, Calif., who is a mining engineer. Born in Australia, Mr. Bensusan has travelled in 29 countries. His brothers and father, are all mining engineers, who being stationed in Brazil, South Africa and Australia, in localities where good minerals abound, Mr. Bensusan is able to import many of his specimens direct from his own family.

Capt. H. E. Mitchell, of Long Beach, Calif., specializes in mineral sets.

Fine brilliant cut stones is a specialty of Ernest Meier, of New York City.

Have you an Arkansas Cinnabar in your collection? H. E. Powell Co., of Little Rock, Ark., can supply one.

E. Mitchell Gunnell, of Denver, Colo., can supply collections of crystals and meteorites.

Gemol, a new specially prepared soluble oil for sawing gem stones, may be obtained from the Geminlap Mart, of Milwaukee, Wisc.

E. W. Martin, of Ann Arbor, Mich., announces the purchase of the famous J. Frank Roberts Collection.

The Cone Lap is a simple heavy duty machine that can be used for shaping many forms of cabochons. If interested, contact the Mountain Gem & Supply Co., Durango, Colo.

Gold nuggets from the Iron Canyon Placer can be obtained from R. L. Taylor, of Battle Mountain, Nev.

Allan Branham, of Lander, Wyo. can supply many specimens which can take a beautiful polish. See his ad.

If you are in need of a diamond wheel dresser, you can get it from B. M. Brehm, of Warren, Ohio.

Buy now and save, announces Thompson's Studio, of Pomona, Calif.

Bacon Agate is a new offering of H. C. Mick, of Morristown, Ariz.

J. B. Clark, of Sunland, Calif., has in stock some nice rough or slabbed cabochon materials.

Prospectors return with fine cutting materials announces L. O. Goodman, of New York City.

A new advertiser is Martin's Mineral Mart, of Gilroy, Calif., who has some nice western minerals.

Fred Roberts, Jr., of Monterey Park, Calif., has some nice Mexican Opals.

J. B. Lankford, of Oklahoma City, Okla., has some odd shaped barite roses from his state.

Another new advertiser is the Highbridge R. T. & A. Ser. Co., of New York City, who have available some Army mine detectors.

Erskine Collection, of La Jolla, Calif., can furnish a few specimens of olive-green gemmy amblygonite.

Still another new advertiser is Michigan Lapidary Supply & Research Co., of Birmingham, Mich. See their announcement.

Polished cabinet specimens are featured this month by Schortmann's Minerals, of Easthampton, Mass.

Some more lists of fine specimens from the stocks of the Wiener Mineral Co., of Tucson, Ariz., appear in this issue.

Minerals from the Swiss Alps are featured this month by Ward's Natural Science Est., of Rochester, N. Y.

Some Christmas specimens are featured by Arthur and Lucille Sanger, of Chicago, Ill.

Burminco, of Monrovia, Calif., have some choice western minerals in stock. Some are featured in this issue.

Colorado Gem Co., of Bayfield, Colo., have large stocks of Gems (rough and cut), minerals books, jewelry, etc.

Felker Manufacturing Co., of Torrance, Calif., announce an efficient low cost diamond saw.

Some choice Mexican Minerals and golden tiger eye are featured this month by the Mineral Foundation, of Tucson, Ariz.

A special attraction in the ad of Hatfield Goudey, of Yerington, Nev., is antlerite from a domestic locality.

Christmas Gift ideas are suggested by Mrs. B. P. Nonneman, of Salinas, Calif.

Another new advertiser is the Pacific Museum, of Shell Beach, Calif. Read their interesting ad.

Still another new advertiser is Karl W. House, of Mina, Nev., who has for sale two outstanding turquoise mines.

The Long Beach Mineral & Lapidary Supply Co., of Long Beach, Calif., are still crowing about their new icicle agate.

Swiss synthetics and imported gem rough are featured this month by Lionel Day, of New York City.

Some interesting western minerals, especially from Idaho, may be had from Steuart W. Hurlbut, of Salmon, Idaho.

Lapidary equipment and supplies, fluorescent lamps and minerals, books, etc. etc., can all be obtained from Western Mineral Exchange, of Seattle, Wash.

Save 50% shipping costs, suggests Poly Products, of Pasadena, Calif., who can supply grinders, saw arbors, and other lapidary equipment.

Sliced gem material are featured by J. L. Davis & Son, of Hot Springs, Ark.

New stock for old friends is the caption of the ad of Herbert Sussbach, of New York City.

More Arizona agates, jaspers and petrified woods are featured by Chas. E. Hill, of Phoenix, Ariz.

J. D. Robinson, of Kansas City, Mo., is with us again. He can supply lapidary equipment.

An invitation is extended to collectors by Hugh A. Ford, of New York City, to visit his showroom. "Come down and make yourself at home, you will receive a friendly welcome."

Fluorescence in all its glory from Franklin, N. J., is the caption of the ad of John S. Albanese, of Newark, N. J.

Some Death Valley minerals are featured by Universal Minerals, of Los Angeles, Calif., a new advertiser.

Agates, pendants, brooches, and rings are available from Nellie E. Turnidge, of Portland, Ore.

The Lay-Art Gem Shop, of Boise, Idaho, have a special clean-up sale on cabochon material.

Gem Exchange Issues New Price List

The Gem Exchange, of Bayfield, Colo., have just issued their new 1947 Preliminary Price List. It is an attractive 20-page catalog listing minerals by states and countries (alphabetically), preform cabochons and facets, books on gems, minerals etc., gem cutting supplies, fluorescent lights and minerals, magazines, etc. Every collector should have a copy of this price list. Send for it today!

Hitch-Hiking Trip

(Continued from page 758)

ling through the beautiful forest country around North Bay, and reached Ottawa that night. Saturday saw me crossing the Thousand Islands Bridge into New York, and coming down through Watertown to Syracuse. Even aside from the minerals I gathered, I think the trip was worth taking. I had travelled about 1250 miles in six days, and had ridden in thirty-six different cars!

Pumice, A Rock That Floats on Water

Pumice, (from the Latin, *pumex*), is a porous rock so light that it wll float on water. It is found near active or extinct volcanoes. One of the world's great localities for pumice are the Lipari Islands, near Italy, from which it has been exported in large amounts for use as a polishing agent.

A Mountain of Calcite in California

At Colton, just off the main highway between Los Angeles and San Bernardino, California, there is a pyramid-shaped mountain of Calcite standing up about 500 ft. from the flat land around it. In 1939 the writer visited this location. There is a winding path, very slippery with calcite dust, which leads to a mining tunnel nearly at the top. Going through the tunnel one reaches a large quarry where the calcite is worked, presumably for cement. The entire mountain is composed of massive white calcite which has free cleavage and can be broken down to large or tiny rhomboids. No other mineral was found by the writer; nor were any individual crystals seen. At that time the writer had not become interested in fluorescence, so he did not test the calcite. There is a flagstaff on top of this mountain with a flag flown by the mining company, so it is conspicuous for miles around. Colton is only about half-a-dozen miles from the famous Crestmore quarry, where blue calcite once abounded, and where the writer once found a two-inch green garnet crystal. No blue calcite was noticed at Colton.

T.O.L.

California Tourmalines May Soon Be Collectors' Items!

Editor R&M:

I wonder if you know that California tourmalines from Mesa Grande and Pala are now collectors' items of the first grade as both mines are stripped bare? Thirteen days work on the Mesa Grande dumps netted me just one good "stick"; everybody else reports the same experience. But I have just acquired one of the only large collections of bi-colored, rose and green pencil tourmalines which run from half an inch to three-quarter inch diameters and up to three inches in length. These are not of faceting grade but still priceless, as specimens will soon be unobtainable.

Geo. W. Chambers
Encinetas, Calif.

Oct. 1, 1946.

There's Gold in Montana!

Editor R&M:

Your 20th Anniversary Number is swell! Many, many years of success! At present I am drilling-panning for the Idaho Canadian Gold Dredging Company on a placer gold prospect in the Silver Creek area out of Helena, Montana.

Sept. 29, 1946

Hugh McCrory
Helena, Mont.

MT. SHARAT, BAFFIN ISLAND

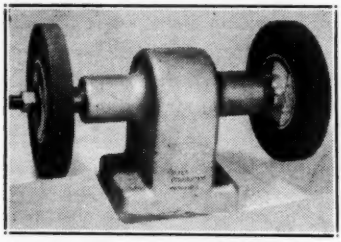
In recognition of his contribution to Arctic geology, a mountain on the south coast of Baffin Island has been named for Dr. Sharat K. Roy, acting chief curator of geology, at Chicago Natural History Museum, Chicago, Ill. This was revealed in the latest map of that area issued by the Hydrographic Office, Washington, D. C.

Mt. Sharat is located at 63° 34' N. Lat., 68° 55' W. Long., near the head of Frobisher Bay, Baffin Island. The bay, a westerly arm of Davis Strait, lying between Hudson Strait and Cumberland Sound, and long believed to be a strait connecting the Atlantic and Pacific Oceans, was discovered in 1576 by Sir Martin Frobisher, an English navigator and explorer.

Dr. Roy made his first trip to Frobisher Bay in 1927-28 as staff geologist of the Rawson-MacMillan Expedition of the Museum to Labrador and Baffin Island. On this trip he traveled extensively, studying and collecting for sixteen months. The results were published in a number of papers by Dr. Roy in the museum's geological series. Since then Dr. Roy has revisited Frobisher Bay twice, and during the war his duties as a captain in the Army Air Force carried him to every major Arctic air base of the North At'antic Command .

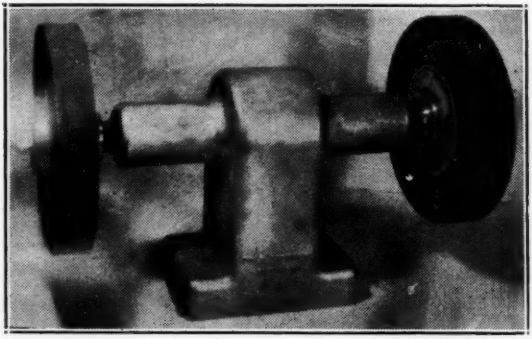
SAVE 50% SHIPPING COSTS

All Poly Porducts use New Departure Heavy Ball Bearings, lubricated for the life of the bearing and sealed for lapidary work. Dirty oil cans and dirty grease guns can not ruin this bearing. All Poly Products use aluminum castings for weight saving, strength, and rust resistance.



D12-8 INCH GRINDER
8" x 1" Wheels shown (Wheels not sold)

Model D12-8 inch Grinder:
¾ x 16½ inch precision steel spindle, 11½ inches between washer and collar, 12 inches between wheels, aluminum alloy housing (saves 50% shipping cost), modern clean design, 5¾ from center of spindle to extreme bottom of base, 3 step pulley and belt furnished. Belt comes through rear of housing or through the base for driving. This feature provides full protection for the operator (schools and instructors please note).
D12-8 inch Grinder **$22.50**
Approx. Shipping Weight 12 pounds



D3-10 INCH GRINDER
10" x 1½" wheels shown (wheels not sold)

Model D3-10 inch Grinder;

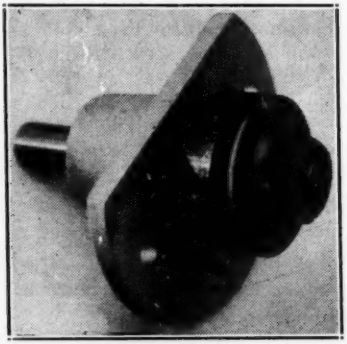
¾ x 22½ inch precision spindle, approx. 2 inches between washer and collar, 16 inches between wheels, aluminum alloy housing (saves 50% shipping cost), 7½ inches from center of spindle to extreme bottom of base, 3 step pulley and belt furnished. Belt comes through rear of the housing or through the base for driving. This feature provides full protection for the operator (schools and instructors please note)

D3-10 inch Grinder $27.50
Approx. Shipping Weight 20 pounds

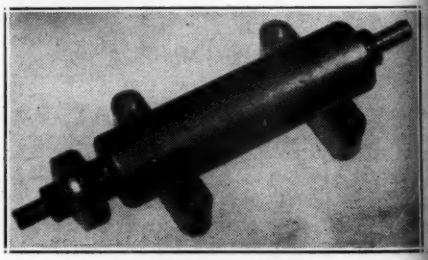
The Poly Rockhound Saw Arbors are Ball Bearing construction. This saw arbor is made to do those heavy sawing, grinding and polishing jobs. This arbor is made in two spindle sizes, ⅝ and ¾. The aluminum housing is 2¼ x 8 inches and the spindle is 12½. The C5-⅝ arbor is $10.00 and the C6-¾ is $11.00.

Approx. shipping weight 6 pounds

We also have a new Ball Bearing line of arbors, selling from $3.50 to $5.00.



SAW ARBOR



B41 TRIM SAW ARBOR
BALL BEARING
⅝" x 4½" Spindle. ½ inch max. between Washer and Collar.
COLLAR—2 inch dia.
FLANGE—4 inch dia.

Our new Ball Bearing Precision Trim Saw will sell for about $42.00. This includes an eight inch diamond blade, precision ground anti-wear cast-iron table, two pulleys and a belt. Write for literature.

Buy now before the Christmas rush! Poly Rockhound machinery is quality and service.

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We also sell belts and pulleys; we design arbors to your specifications.

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